

**SEPTEMBER 1998**  
**VOLUME 40**  
**NUMBER 9**

# **STORM DATA**



**AND UNUSUAL WEATHER PHENOMENA  
WITH LATE REPORTS AND CORRECTIONS**



**noaa** NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

NATIONAL ENVIRONMENTAL SATELLITE  
DATA, AND INFORMATION SERVICE

NATIONAL CLIMATIC DATA CENTER  
ASHEVILLE, N.C.

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**Cover:** A tractor-trailer lies against the pilings of a bridge in San Juan, Puerto Rico after the passage of Hurricane Georges. The hurricane brought 115-mph wind speeds and as much as 30 inches of rainfall was reported at some weather observing sites. Note the floating debris in the flooded river. Although no deaths occurred in Puerto Rico, damage was substantial with thousands of homes destroyed. (*Photograph courtesy of Steve Piltz, Warning Coordination Meteorologist, National Weather Service, Tulsa, OK*)

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**STORM DATA**  
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Assistant Editor: Stuart Hinson

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**STORM DATA** contains all confirmed information on storms available to our staff at the time of publication. However, due to difficulties inherent in the collection of this type of data, it is not all-inclusive. Late reports and corrections are printed in each edition.

Maps of the National Weather Service County Warning Areas which are used in the Storm Data and Unusual Weather Phenomena section will be printed in all editions.

Except for limited editing to correct grammatical errors, materials submitted are generally published as received.

Note: "None Reported" means that no severe weather occurred and "Not Received" means that no reports were received for this region at the time of printing.

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The editors of **STORM DATA** solicits your help in acquiring photographs (prints or slides; black and white, or color), maps, clippings, etc. of significant or unusual weather events (past or present). These could be for use in the "Outstanding Storms of the Month" section of **STORM DATA**. We request our subscribers or other interested persons to mail such items to:

Stuart Hinson  
National Climatic Data Center  
151 Patton Avenue  
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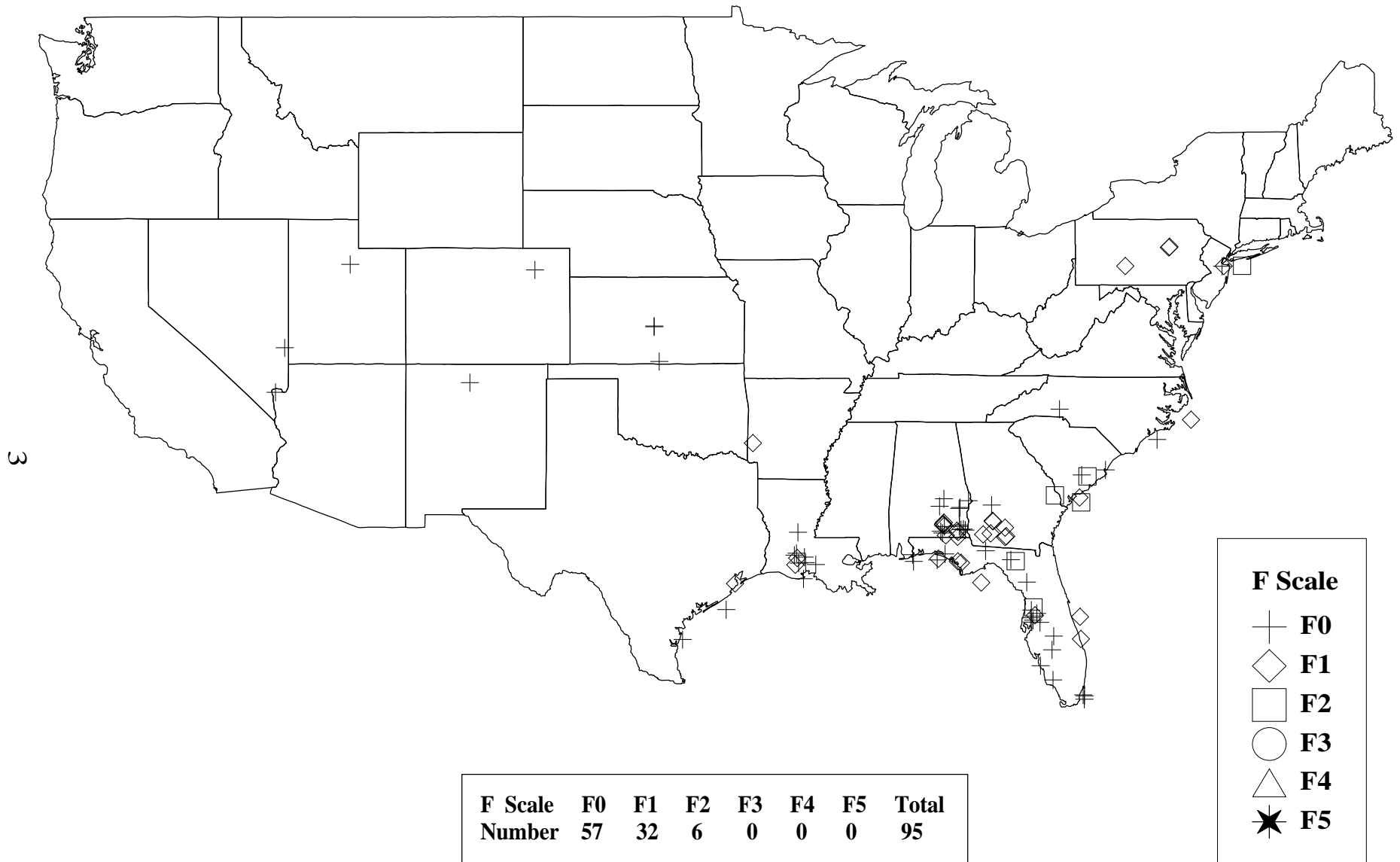
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"I certify that this is an official publication of the National Oceanic and Atmospheric Administration and is compiled from information received at the National Climatic Data Center Asheville, North Carolina 28801-2733."



Thomas R. Karl  
Director,  
National Climatic Data Center

# September 1998 Confirmed Tornadoes





## OUTSTANDING STORMS OF THE MONTH

### 1. HURRICANE GEORGES MAKES GULF COAST LANDFALL

Hurricane Georges formed from a tropical wave off the east coast of Africa and became a tropical storm on the morning of September 16th. By late afternoon on the 17th, satellite imagery indicated that Georges had strengthened into a hurricane. Georges moved west-northwest for several days and developed estimated wind speeds of 155 mph, a Category 4 hurricane on the Saffir-Simpson scale. The minimum central pressure was 937 mb (27.67 inches of Hg) early on the 20th. Georges first made landfall at Antigua in the Leeward Islands late on the 20th, skirted the northeast Caribbean Islands, then hit Puerto Rico on the evening of the 21st with maximum wind speeds of 115 mph. Georges made landfall in the Dominican Republic during the afternoon of the 22nd with maximum wind speeds of 120 mph. Georges weakened over the mountainous terrain of Hispaniola then made landfall in eastern Cuba on the afternoon of the 23rd with maximum wind speeds of 75 mph. The hurricane continued along the northern coast of Cuba on the 24th. Georges moved into the Florida Straits early on the 25th and re-intensified before making landfall near Key West, Florida with wind speeds of 105 mph. Georges made its final landfall near Biloxi, Mississippi early on September 28 with 105 mph wind speeds. Georges slowly moved inland and weakened to a tropical storm later that day. Georges caused 1 death and resulted in an estimated \$5.1 Billion in damage to the U.S. *(Photographs courtesy of Frank Revitte, Warning Coordination Meteorologist, National Weather Service, Slidell, LA)*



**Top Left:** Many of the damaged homes and fish camps on Lake Catherine, outside of the protective levee system. **Top Right:** Many fishing camps located along Lake Pontchartrain were destroyed by high winds and storm surge. **Bottom Left:** Pilings are all that remain of some of the homes and fish camps along Lake Pontchartrain. **Bottom Right:** A home in Pascagoula, MS received structural damage to its roof.





## 2. THUNDERSTORM WINDS KILL 2 AND CAUSE DAMAGE IN CENTRAL NY

A severe weather scenario developed across central New York in early September. The National Weather Service (NWS) Storms Prediction Center (SPC) issued a Severe Thunderstorm Watch for the area at 11:30 p.m. EDT on September 6. The NWS issued the first Severe Thunderstorm Warnings shortly thereafter on September 7. During the early morning hours on September 7 (between 12:30 and 2:30 a.m.), a cluster of severe thunderstorms moved across central New York. The thunderstorms continued moving eastward across southern Vermont, New Hampshire and Massachusetts. Two deaths occurred at the New York State Fairgrounds. A tree fell on a trailer killing one man and a piece of roof struck another. The NWS post-storm survey estimated wind speeds in the Syracuse area at 70 to 90 mph with localized gusts reaching 100 to 115 mph. The storm downed thousands of trees, caused roof damage, blew out windows and damaged several large antennas. Hundreds of thousands of people went without power for much of Labor Day. Some customers did not have power restored for a week. In the Syracuse area alone (Onondaga County) damage estimates reached \$90 million. *(Photographs Courtesy of Stephan Kuhl, Warning Coordination Meteorologist, National Weather Service, Binghamton, NY)*



**Top Left:** Storm damage to dormitories at Syracuse University. **Top Right:** Steel flag poles bent by the high wind speeds at the NY State Fairgrounds. **Bottom Left:** A tree toppled by the high winds destroyed this trailer at the NY State Fairgrounds. **Bottom Right:** Damaged church in Syracuse, NY.



# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<u><b>ALABAMA, North Central</b></u>									
<b>ALZ006</b>	<b>Madison</b>								
	<b>01</b>	<b>0000CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>100K</b>	<b>Drought</b>
	<b>30</b>	<b>2359CST</b>							
	The rainfall total for September was 0.48 inches, the lowest total for any September on record.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>01</b>	<b>0000CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	<b>30</b>	<b>2359CST</b>							
	The average monthly temperature of 78.2 degrees was the hottest ever recorded for September.								
<b>Montgomery County</b>									
<b>Countywide</b>	<b>01</b>	<b>0000CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Heavy Rain</b>
	<b>30</b>	<b>2359CST</b>							
	Hurricane Georges dumped large amounts of rainfall on the area. September rainfall of 9.47 inches was the fifth highest total for September on record.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>05</b>	<b>1500CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 100 degrees was established.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>09</b>	<b>0600CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Extreme Cold</b>
	Record low temperature of 54 degrees was tied.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>10</b>	<b>0600CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Extreme Cold</b>
	Record low temperature of 50 degrees was established.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>13</b>	<b>1600CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 97 degrees was established.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>16</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 95 degrees was tied.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>17</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 95 degrees was tied.								
<b>Tuscaloosa County</b>									
<b>South Portion</b>	<b>21</b>	<b>0000CST</b> <b>0800CST</b>			<b>0</b>	<b>0</b>	<b>4K</b>	<b>0</b>	<b>Flash Flood</b>
<b>Bibb County</b>									
<b>North Portion</b>	<b>21</b>	<b>0100CST</b> <b>0900CST</b>			<b>0</b>	<b>0</b>	<b>12K</b>	<b>0</b>	<b>Flash Flood</b>
<b>Shelby County</b>									
<b>Southwest Portion</b>	<b>21</b>	<b>0300CST</b> <b>1000CST</b>			<b>0</b>	<b>0</b>	<b>12K</b>	<b>0</b>	<b>Flash Flood</b>
	The remnants of Tropical Storm Hermine dumped 6+ inches of rain on southern Tuscaloosa County especially the southeastern corner, northern Bibb County, and southwest Shelby County. Several roads were closed and some cars were swamped. Several motorists were stranded on CR 24 in Bibb County. Numerous vehicles were damaged in Montevallo along with flooding of some apartments.								
<b>ALZ006</b>	<b>Madison</b>								
	<b>27</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 94 degrees was established.								
<b>ALZ024</b>	<b>Jefferson</b>								
	<b>27</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Excessive Heat</b>
	Record high temperature of 94 degrees was tied.								
<b>Pike County</b>									
<b>Goshen</b>	<b>28</b>	<b>1254CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Funnel Cloud</b>
	Funnel cloud was reported an unspecified distance west of Goshen.								
<b>Pike County</b>									
<b>16 SW Troy to</b>	<b>28</b>	<b>1257CST</b>	<b>1.6</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>25K</b>	<b>5K</b>	<b>Tornado (F0)</b>
<b>15.9 SW Troy</b>		<b>1303CST</b>							
	Hurricane Georges spawned tornadoes across southeast and south central Alabama on the 28th and 29th. The first tornado touched down in extreme southwest Pike County. Numerous trees and power lines down in the Camp Sharon and Fleetwood communities. This tornado continued into Crenshaw County and produced damage near Glenwood.								

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>ALABAMA, North Central</b>									
<b>Pike County</b>									
10 W Troy	28	1300CST			0	0	12K	2K	Thunderstorm Wind (G50)
									Wind associated with a thunderstorm downed trees near the intersection of SR 10 and CR 5 in western Pike County.
<b>Pike County</b>									
17 SE Troy to 12 SE Troy	28	1306CST 1312CST	5	50	0	0	4K	2K	Tornado (F0)
									A tornado moved northward across southeastern Pike county and knocked trees down east of Hamilton Crossroads.
<b>Pike County</b>									
14 ESE Troy to 12.3 E Troy	28	1318CST 1324CST	6	50	0	0	4K	3K	Tornado (F0)
									A tornado knocked trees down in Shiloh and Monticello as it moved northward across eastern Pike County.
<b>Lowndes County</b>									
Letohatchee to .9 SE Hayneville	28	1347CST 1359CST	6	50	0	0	45K	4K	Tornado (F0)
									A tornado moved northwest along CR 97 from Letohatchee to Hayneville. Numerous trees and power lines were knocked down, one mobile home was totally destroyed, and several others sustained minor damage.
<b>Bullock County</b>									
11.1 SSW Union Spgs to 10 SW Union Spgs	28	1353CST 1411CST	7	65	0	0	75K	5K	Tornado (F0)
									A tornado moved northwest across the western part of the county from near Hall's Crossroads to north of Hook's Crossroads. A church was totally destroyed on Bullock 223 south of Hall's Crossroads, several trees were downed or uprooted, and some homes had minor damage.
<b>Barbour County</b>									
10 W Clayton	28	1416CST			0	0	0	0	Funnel Cloud
									A funnel cloud was reported in western Barbour County west of Clayton.
<b>Bullock County</b>									
12 S Union Spgs	28	1422CST			0	0	0	0	Funnel Cloud
									A funnel cloud reported near the community of Smuteye.
<b>Bullock County</b>									
5.9 S Union Spgs to 3.3 S Union Spgs	28	1444CST 1450CST	4	40	0	0	15K	4K	Tornado (F0)
									A tornado caused minor damage to an egg house and knocked a few trees down on CR 31 south of Union Springs.
<b>Bullock County</b>									
Union Spgs	28	1454CST			0	0	0	0	Funnel Cloud
									A funnel cloud was reported in the city of Union Springs.
<b>Elmore County</b>									
2.2 NE Wetumpka to 3.5 N Wetumpka	28	1619CST 1623CST	3	50	0	0	18K	0	Tornado (F0)
									A tornado moved northwest across western Elmore county from just northeast of Wetumpka to just northwest of the Wallsboro community. Some minor damage was reported at the Julia Tutwiler Prison. Trees and power lines were down in Wallsboro and a doctor's office was damaged.
<b>Russell County</b>									
12 W Phenix City to 12.2 W Phenix City	28	1626CST 1628CST	1.5	30	0	0	0	2K	Tornado (F0)
<b>Lee County</b>									
4.3 SE J C Meadows Xrds to 3.8 SE J C Meadows Xrds	28	1628CST 1630CST	0.5	30	0	0	0	0	Tornado (F0)
									A weak tornado briefly touched down just west of Crawford in northern Russell County crossing just into Lee County. Little to no damage occurred.
<b>Dallas County</b>									
Countywide	29	0545CST 1500CST			0	0	65K	10K	Flash Flood
<b>Lowndes County</b>									
Countywide	29	0545CST 1500CST			0	0	50K	10K	Flash Flood
									The remnants of Hurricane Georges dumped 5+ inches of rain across the two counties. Numerous roads were covered with water and many roads were impassable and closed. Non-severe wind and saturated conditions combined to knock down many trees.

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons  KilledInjured		Estimated Damage  PropertyCrops		Character of Storm
<b><u>ALABAMA, North Central</u></b>									
<b>Bullock County</b> Countywide	29	0930CST 1500CST			0	0	40K	10K	Flash Flood
<b>Montgomery County</b> Countywide	29	0930CST 1500CST			0	0	50K	10K	Flash Flood
<b>Pike County</b> Countywide	29	0930CST 1500CST			0	0	50K	10K	Flash Flood
The remnants of Hurricane Georges dumped 5+ inches of rain across the three counties. Numerous roads were covered with water and many roads were impassable and closed. Non-severe wind and saturated conditions combined to knock many trees down.									
<b>ALZ006</b> <b>Madison</b>	30	1700CST			0	0	0	0	Excessive Heat
Record high temperature of 92 degrees was established.									
<b><u>ALABAMA, Southeast</u></b>									
<b>ALZ065&gt;069</b> <b>Coffee - Dale - Henry - Geneva - Houston</b>	02 03	2100EST 1800EST			0	0	120K		Tropical Storm
Tropical Storm Earl moved northeastward across Southwest and Central Georgia. Rainfall amounts varied from two to four inches. Peak wind gusts of 40 mph were recorded at Ozark and Enterprise, AL.									
Throughout Coffee, Dale, Henry, and Houston counties, numerous reports of minor damage caused by downed trees and power lines with scattered outages. Geneva County officials reported wind damage to a few businesses in Slocumb, AL. CR 28 was temporarily closed to fallen trees and power lines.									
<b>ALZ065-068</b> <b>Coffee - Geneva</b>	28 29	0000EST 1800EST			0	0	4M	15M	Flood
Torrential rains from Tropical Storm/Depression Georges of 8 to 24 inches produced the worst flooding in Geneva County since Hurricane Opal in 1995. Numerous roads were damaged or washed out. AL 54 was closed from Samson west to Florala. All county roads were closed for fear of more flooding and washouts. Significant losses were incurred to peanut and cotton crops. Several creeks overflowed their banks closing AL 65, 54, and 52. Throughout Coffee County, torrential rains caused significant flooding. Numerous city and residential streets in Elba were flooded as the city's drainage system overflowed.									
<b>Coffee County</b> Northeast Portion	28	1420EST 1425EST			0	0	50K		Thunderstorm Wind
Numerous trees and power lines down on CR 306 and 307 near Brantley. One tree fell on a house.									
<b>Dale County</b> Ozark	28	1530EST	0.3	0	0	0	25K		Tornado (F0)
An F0 tornado briefly touched down on the north side of Ozark off Marvin Parker Rd and CR 68 uprooting trees and power poles.									
<b>Henry County</b> Newville	28	2000EST	0.5	.1	0	0	75K		Tornado (F0)
An F0 tornado damaged a barn and residence off CR 173 in Newville.									
<b>Dale County</b> Echo	28	2035EST	0.3	0	0	0	150K		Tornado (F0)
An F0 tornado briefly touched down at the intersection of CR 40 and 7 near the Dale-Henry County line. Numerous trees were uprooted and a pump house was destroyed.									
<b>Geneva County</b> Samson	29	0230EST	1	.1	0	3	100K		Tornado (F1)
An F1 tornado touched down five miles northeast of Samson off CR 8. One mobile was lifted 50 feet off its foundation and destroyed. The three occupants sustained minor injuries.									
<b>Coffee County</b> Enterprise	29	0240EST	1	.1	0	0	1.5M		Tornado (F1)
An F1 tornado touched down on CR 725 near Enterprise. One residence suffered roof damage. Camp Wiregrass sustained moderate to severe damage with several buildings crumpled, trees and power lines down, and scattered debris. Numerous customers in Enterprise were without electric service. A semi was blown over at Con Agra.									
<b>Coffee County</b> New Brockton	29	0245EST	1	.1	0	0	500K		Tornado (F1)
An F1 tornado descended near CR 732 in New Brockton damaging several chicken houses, roads, ditches, and drainage systems.									



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## ALABAMA, Southeast

### Geneva County Geneva

29 0245EST 3 .2 0 0 50K Tornado (F1)  
0250EST

An F1 tornado skipped along AL 85 between Geneva and Bellwood. Several trees and power lines were toppled and the Providence Church near Bellwood sustained minor roof damage.

## ALABAMA, Southwest

### ALZ061>064

#### Upper Mobile - Upper Baldwin - Lower Mobile - Lower Baldwin

01 1500CST 0 0 10K Hurricane  
03 2359CST

For narrative on Hurricane Earl see Florida, West Panhandle, September 1-3, 1998.

### Baldwin County Gulf Shrs

19 1300CST 0.1 25 0 0 Tornado (F0)  
1301CST

A waterspout moved ashore near Gulf Shores and rapidly dissipated. No damage was found.

### Choctaw County Gilbertown

21 1100CST 0 0 5K Flash Flood  
1230CST

Heavy rains in the south part of Choctaw county caused some flooding. Some roads had to be temporarily closed due to high water. Three mobile homes near Gilbertown had to be evacuated due to high water. Radar estimated that three to five inches of rain fell across the county.

### ALZ051>053-055>064

#### Choctaw - Washington - Clarke - Monroe - Conecuh - Butler - Crenshaw - Escambia - Covington - Upper Mobile - Upper Baldwin - Lower Mobile - Lower Baldwin

25 0900CST 1 0 174.2M 5M Hurricane  
29 0900CST

For the second time in less than a month, the area was again threatened by a hurricane. Hurricane Georges affected the region September 25 through the 29. The coastal areas from Dauphin Island to east of Destin were put under a hurricane watch at 900 AM CST, September 25. A hurricane warning was issued for the area at 900 AM CST, September 26. The hurricane warning was changed to a tropical storm warning for the area at 300 PM CST, September 28. All tropical storm warnings for the area were dropped at 900 AM CST, September 29.

Georges made landfall along the Mississippi coast near Biloxi between 300 and 500 AM CST, September 28.

Some of the winds recorded across Southwest Alabama and Northwest Florida were as follows: Mobile Regional Airport, sustained winds of 44 knots, gusts to 55 knots. Pensacola Regional Airport, sustained winds of 44 knots, gusts to 58 knots. Pensacola Naval Air Station, sustained winds of 40 knots, gusts 61 knots. Hurlburt Air Force Base in Mary Esther, sustained winds of 44 knots, gusts to 69 knots. Eglin Air Force Base in Valparaiso, sustained winds of 42 knots, gusts to 79 knots. Dauphin Island C-Man Buoy, gusts to 71 knots.

Lowest sea level pressure was 989.9 millibars at Mobile Regional Airport.

Four day rainfall totals ending around midnight on September 29: Mobile Regional Airport 15.02 inches, Pensacola Regional Airport 15.78 inches, Crestview 19.98 inches, Valparaiso 24.24 inches, Pensacola Naval Air Station 12.84 inches, Milton (Whiting Field) 18.41 inches, Bay Minette 29.66 inches, Andalusia (TV Station) 26.90 inches, Pensacola (TV Station) 26.83 inches, Gulf Breeze 26.87 inches and Spanish Fort 19.86 inches.

Most of the destruction along the coastal areas was caused by a very high storm surge. Surges along the coast were estimated at 7 to 12 feet in Mobile and Baldwin counties and 5 to 10 feet in Escambia, Santa Rosa and Okaloosa counties in Northwest Florida. Downtown Mobile had a surge of around 8.5 feet, with high "water" covering Water street. Bayou La Batre had a surge of 8.8 feet and many businesses and homes had water in them. The western part of Mobile Bay had a surge of 8.3 feet and the road parallel to the bay near Nan Seas was completely washed out. Along the Mobile Bay Causeway the surge was 8.0 feet. A male clung to a tree along the Causeway for almost twenty-four hours to escape the high water. He was staying in a building that the high surge destroyed and took refuge in a tree. He was able to tread to another building after the water retreated and was found the next day, exhausted. Many businesses along the Causeway were damaged by the surge. Fort Morgan had a surge of 8.5 feet with Gulf Shores having 9.0 feet. The surge on the west end of Dauphin Island caused the most damage where eighty homes were damaged with around forty completely destroyed. Many gulf front homes on the west end of the island were pushed across the island and ended up either against other homes or scattered across the sand. Pensacola Beach had a surge of 7.7 feet with Destin Harbour reaching a surge of 5.2 feet.

Major beach erosion occurred along the coast from Dauphin Island to Destin. High water breached Dauphin Island, Pensacola Beach and Navarre Beach in several locations. Several motels from Gulf Shores to Destin suffered major damage. Two condominiums were heavily damaged in Orange Beach, one by fire and the other by high waves. Some of the motels that suffered damage were still closed two months after the storm. Sand pushed in by the high water caused several coastal roads to be closed from Dauphin Island to Destin. Some of the roads were completely washed away with the roads having to be rebuilt on Dauphin Island, Pensacola Beach and Navarre Beach. Some of the roads were still closed two months after the storm.

Major damage occurred from river flooding in several of the inland counties after Georges dissipated. The Styx, Perdido, Shoal, Yellow, Big Escambia Creek, Bayou Sara and Blackwater rivers either were near or above record flood levels. Other rivers from Southeast Mississippi to the Florida Panhandle came out of their banks.

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>ALABAMA, Southwest</u></b>									
<p>It was estimated that nine tornadoes occurred across the area. The tornadoes occurred in Baldwin, Covington and Crenshaw counties in Southwest Alabama and in Okaloosa county in Northwest Florida.</p> <p>One death was directly related to the hurricane. In Mobile county a 43 year old female was returning home on the evening of September 27, after checking on her parents who lived just inside the Mississippi line. She hit a flooded spot in the road and slid off into Franklin Creek and drowned. She was not found for several days. In Escambia county Florida, three deaths were indirectly related to Georges. A female, using a candle for light on September 27, died in a fire caused by the candle. An elderly couple were both killed in a car accident on September 29. They were hit at an intersection where the storm had knocked the power off and the stop lights were not working.</p> <p>Most of the inland counties in Southeast Mississippi and Southwest Alabama had damage from heavy rains and from trees and power lines being blown down by the persistent winds. One of the hardest hit areas by the high winds was in Stone county Mississippi near where the center of the hurricane moved. Eighty five homes were damaged in Stone county by the wind. Fifty four homes had minor damage, twenty six had major damage and five were destroyed. Most of the damage was along and east of U. S. Highway 49.</p> <p>Throughout the area, agriculture took a beating with the cotton, soybean and pecan crop almost totally destroyed.</p> <p>Preliminary damage estimates in Southwest Alabama were 174.2 million dollars, in Northwest Florida 135 million dollars and in Southeast Mississippi 72 million dollars. F43OU</p>									
<b>Escambia County</b> 2 W Wallace	26	1855CST 1857CST			0	0			<b>Funnel Cloud</b>
<p>Several people observed a funnel cloud along I-65 just west of Wallace. The funnel was visible for a couple of minutes. No evidence of the funnel ever touching down was found.</p>									
<b>Escambia County</b> Countywide	27 29	1130CST 1800CST			0	0	0		<b>Flood</b>
<p>Heavy rains from Hurricane Georges caused major flooding across the county. Rainfall totals of fifteen to twenty inches were estimated across the county. Many roads throughout the county had to be closed because of flooding. Schools were closed for two days because of washed out secondary roads. At Flomaton, major routes US 31, US 29 and AL 113 were closed by flooding. US 31 and US 29 in Brewton were closed by flooding. Downtown Brewton was also flooded. The heavy rainfall also caused major river flooding in the county. The Conecuh River at Brewton crested at 23.5 feet on October 4 which was 6.5 feet above flood stage. The Big Escambia Creek at Flomaton crested at 20.4 feet on September 30. This was higher than the March flood of this year.</p>									
<b>Baldwin County</b> 3 N Loxley	27	1655CST 1656CST	0.1	25	0	0	3K		<b>Tornado (F0)</b>
<p>A tornado briefly touched down just north of I-10 near the Loxley exit. The only damage was to trees and power lines.</p>									
<b>Baldwin County</b> Countywide	28 29	0515CST 1800CST			0	0			<b>Flood</b>
<p>Hurricane Georges dropped fifteen to twenty five inches of rainfall across the county. Almost every road in the county had to be temporarily closed because of high water. I-10 had to be closed for several hours because of high water running across the road near the Alabama and Florida state line. Schools across the county were closed for three days because of flooding of secondary roads around the county. Many bridges had to be closed because of possible undermining by high water. Some of the secondary roads were closed for weeks before they could be repaired. The heavy rainfall caused extensive river flooding along the east part of the county. The Perdido River that separates Alabama and Florida crested at 26.30 feet which was above the record of 23.94 feet. The Styx River crested at 28.6 feet which was estimated to be a two hundred year flood. The Fish River was lower than during Hurricane Danny of last year but still crested at 17.31 feet which was a twenty-five year flood.</p>									
<b>Covington County</b> 4 SW Opp	28	0705CST 0707CST	0.2	50	0	0	5K		<b>Tornado (F0)</b>
<p>A tornado briefly touched down along County Road 77, about 4 miles southwest of Opp. The tornado twisted several trees and power lines down.</p>									
<b>Covington County</b> 5 NE Andalusia	28	0745CST 0747CST	0.5	50	0	0	25K		<b>Tornado (F0)</b>
<p>A tornado briefly touched down near the community of Antioch (northeast of Andalusia). The tornado caused roof damage to three homes. Several trees and power lines were also blown down.</p>									
<b>Baldwin County</b> Orange Beach	28	0950CST 0951CST			0	0	20K		<b>Thunderstorm Wind (G50)</b>
<p>High winds damaged the roofs of a couple of homes in Orange Beach.</p>									

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b>ALABAMA, Southwest</b>									
<b>Covington County</b>									
Countywide	28	1030CST			0	0			Flood
	29	1800CST							
Heavy rainfall from Hurricane Georges was estimated between fifteen and twenty-seven inches across the county. The heavy rainfall caused widespread flooding throughout the county. Most of the roads throughout the county had to be closed for several hours because of high water. Schools were closed for three days because of washouts of many secondary roads in the county. Th e heavy rains caused the Conecuh River near River Falls to rise to 46.4 feet on September 29. This was well below the record of 52.5 feet in March of 1929.									
<b>Butler County</b>									
Countywide	28	1030CST			0	0			Flood
	29	1800CST							
Heavy rains of fifteen to twenty inches from Hurricane Georges caused widespread flooding throughout the county. Many roads were closed for several hours due to high water or washouts. Schools were closed for three days because of the many secondary roads that were washed out. Several bridges were also closed due to high water undermining the bridges.									
<b>Mobile County</b>									
Countywide	28	1100CST			0	0			Flood
	29	1800CST							
Rainfall estimates from Hurricane Georges were between fifteen and twenty inches throughout the county. Many roads had to be closed for several hours because of high water. Schools were closed for three days because of damage done to secondary roads around the county. The heavy rainfall also caused many bridges around the county to be closed because of undermining by the high water. The heavy rains caused many of the rivers across the county to rise to near or above record levels. Bayou Sara reached 9.8 feet on September 28. This was above the previous unofficial record of 7.84 feet in April of 1979. The Fowl River rose to 10.27 feet and was considered to be a twenty-five year flood. This reading was well below the reading with Hurricane Danny last year.									
<b>Washington County</b>									
Countywide	28	1100CST			0	0			Flood
	29	1800CST							
Rainfall estimates of between ten and fifteen inches from Hurricane Georges fell throughout the county. Most of the damage in the county was from flood damage to roadways. Most of the roads throughout the county had to be closed for several hours because of high water. Schools were closed for two days due to the many washouts on secondary roads around the county. Many bridges had to also be closed due to undermining due to high water.									
<b>Crenshaw County</b>									
Glenwood	28	1305CST	1	50	0	0	50K		Tornado (F1)
		1306CST							
A tornado touched down near the community of Glenwood. The tornado destroyed a trailer and damaged several other homes. Trees and power lines were also blown down. No injuries were reported.									
<b>Crenshaw County</b>									
Patsburg	28	1305CST	0.5	50	0	0	100K		Tornado (F1)
		1306CST							
A tornado briefly touched down near the community of Patsburg. Two homes had major damage and a business was destroyed. Trees and power lines were also blown down. Several horses were also injured.									
<b>Crenshaw County</b>									
Luverne	28	1310CST	0.5	50	0	0	50K		Tornado (F1)
		1311CST							
A tornado briefly touched down just northwest of Luverne. The tornado destroyed a county barn and caused minor damage to several brick homes. Trees and power lines were also blown down.									
<b>Crenshaw County</b>									
Petrey	28	1310CST	0.5	50	0	0	50K		Tornado (F1)
		1311CST							
A tornado briefly touched down near the community of Petrey. Three homes suffered major damage. Trees and power lines were also blown down. No injuries were reported.									
<b>Covington County</b>									
Andalusia	28	1835CST			0	0	5K		Thunderstorm Wind (G50)
		1837CST							
Trees and power lines were blown down just south of Andalusia.									
<b>Covington County</b>									
Green Bay	28	1920CST			0	0	3K		Thunderstorm Wind (G50)
		1922CST							
Trees and power lines were blown down near Green Bay.									
<b>Covington County</b>									
Opp	28	2005CST			0	0	5K		Thunderstorm Wind (G50)
		2007CST							
Trees and power lines were blown down near Opp.									



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ALABAMA, Southwest

### **Crenshaw County Countywide**

**29 0830CST  
1530CST** **0 0** **Flood**

Rainfall from Hurricane Georges was estimated between ten and twenty inches across the county. The heavy rains caused many of the roads across the county to be closed for several hours. Schools were closed for three days due to washouts of many secondary roads. Many bridges along secondary roads had to be closed due to undermining by high water.

### **Conecuh County Countywide**

**29 1130CST  
1800CST** **0 0** **Flood**

Rainfall estimates of between five and ten inches from Hurricane Georges fell across the county. Several roads around the county were closed for a few hours due to high water. Schools were closed two to three days because of washouts of secondary roads throughout the county. The area east and south of I-65 was the hardest hit from the flooding. The heavy rains also caused several of the creeks and small streams in the county to come out of their banks. Murder, Burnt Corn and Brushy creeks came out of their banks as did the Sepulga River. Other than road damage, no major damage was reported to any homes from the flooded streams.

## ALASKA, Northern

### **AKZ007**

**Tanana Valley  
01 0900AST  
1200AST** **0 0** **1K** **High Wind (G51)**

A building pressure gradient south of the Alaska Range produced strong winds through the passes that reach Delta Junction. Maximum gust reported at Delta Junction ASOS was 59 mph. The Alaska State Division of Forestry noted some trees and power lines were downed by the wind. Dry Creek Co-op site, 43 miles southeast of Delta, reported winds 40 to 50 mph that day, no damage.

### **AKZ005**

**Upper Yukon Valley  
13 0000AST  
14 1200AST** **0 0** **Heavy Snow**

The co-op observer at the East Fork of the Sheenjak River, 120 miles northeast of Fort Yukon, reported a 24-hour snowfall of 8.5 inches on the 13th, and another 5.5 inches on the 14th. Actual duration of event is estimated.

### **AKZ007**

**Tanana Valley  
19 0300AST  
1400AST** **0 0** **1K** **High Wind (G51)**

The remains of typhoon Stella moved north over Alaska, the associated weather front causing strong winds across the Alaska Range on the 19th. Strongest winds at Delta Junction were gusts to 63 mph, and at healy, gusts to 48 mph. A co-op observer at Delta reported a shed being blown over.

### **AKZ006-008**

**Southern Seward Peninsula-Eastern Norton Sound - Lower Yukon Valley  
25 0335AST  
1400AST** **0 0** **High Wind (G54)**

A strong low pressure center 50 miles northwest of Unalakleet produced wind gusts to 62 mph at Unalakleet. Lesser winds, gusting 41 mph, were reported at Galena, however one tree fell onto a power line. At Nulato, the Co-op observer reported "damaging winds", speed not estimated.

## ALASKA, Southeast

NOT RECEIVED.

## ALASKA, Southern

### **AKZ015-017-019**

**Cook Inlet - Central Gulf Coast - Western Alaska Peninsula  
01 0000AST  
2200AST** **0 0** **High Wind (G55)**

This is a continuation of the August 31 storm.

A moderate front associated with a strong 965 mb low, moved by the Central North Gulf Coast Sunday, as the parent low curved northwestward toward Kodiak and began to weaken. Easterly wind gusts reached 64 mph around Middleton Island and Cordova just ahead of the front.. Behind the front, strong southeast winds were also observed, accompanied by rapidly rising surface pressures. With the strong isalobaric pressure rise, brisk southeast winds were also observed along the Anchorage Upper Hillside where wind gusts reached 56 mph. Along the back side of the low, strong northwest winds were reported along the Alaska Peninsula...gusting up to 58 mph.

### **AKZ015**

**Cook Inlet  
01 0600AST  
1800AST** **0 0** **High Wind (G70)**

### **Central Gulf Coast Seward**

**01 0800AST  
02 0000AST** **0 0** **Heavy Rain**

A very strong low, estimated central pressure of 962 mbs, moved northward into the Gulf of Alaska Sunday and Monday. Strong

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed     Injured		Estimated Damage Property     Crops		Character of Storm
<u><b>ALASKA, Southern</b></u>									
east and southeast winds were reported across the central North Gulf Coast and Prince William Sound (gusts to 72 mph), channeled areas adjacent to Turnagain Arm (gusts to 81 mph) and across Kodiak island (gusts to 76 mph). Additionally heavy rains (close to 5 inches locally in 24 hour) prompted Flash Flood Watches around Girdwood and Seward.									
<b>AKZ019&gt;020</b>	<b>Western Alaska Peninsula - Aleutian Islands</b>								
	18	0000AST			0	0			High Wind (G60)
	19	2300AST							
A rapidly deepening low brought strong, prefrontal southeast winds to the Aleutians and Alaska Peninsula and equally strong northwesterly winds on the back side of the storm. Gusts close to 70 mph were recorded around Cold Bay and at Adak.									
<b>Central Gulf Coast</b>									
<b>Seward</b>	18	1200AST			0	0			Heavy Rain
	20	1200AST							
Heavy rain in the Seward area Friday and Saturday caused substantial rises on the Resurrection River and on smaller streams in and around Seward. A flood watch was issued. Nearly 3 inches of rain fell from Friday evening through Saturday evening, causing the Resurrection River to rise nearly 4 feet during the same 24 hour period.									
<b>AKZ015-017</b>	<b>Cook Inlet - Central Gulf Coast</b>								
	19	0000AST			0	0			High Wind (G58)
	20	0300AST							
A strong front moving northeastward through the area brought strong southeasterly winds to many exposed areas. Wind gusts reached 67 mph around Cordova near the city boat harbor and 60 mph along the Upper Anchorage Hillside.									
<b>AKZ011-019&gt;020</b>	<b>Kuskokwim Delta - Western Alaska Peninsula - Aleutian Islands</b>								
	22	1200AST			0	0			High Wind (G55)
	23	1200AST							
A strong weather front moved northeast through the area, accompanied by wind gusts from 55 to near 65 mph across many areas. Strongest winds were reported at Cold Bay , Adak and Dutch Harbor (63 mph).									
<b>AKZ011-020</b>	<b>Kuskokwim Delta - Aleutian Islands</b>								
	23	0000AST			0	0			High Wind (G45)
		1800AST							
A strong 957mb low in the northcentral Bering Sea brought brisk southwest winds to much of the northern Bering Sea and Kuskokwim Delta coast. Gusts reached 52 mph across both areas.									
<b>AKZ011-016-019</b>	<b>Kuskokwim Delta - Bristol Bay Coastal - Western Alaska Peninsula</b>								
	24	0000AST			0	0			High Wind (G55)
	25	0900AST							
Strong southwesterly winds were reported along the "back side" of a fast deepening and fast filling 974mb low. The low deepened as it moved northeastward into Bristol Bay, then began to weaken rapidly Friday as it moved through Eastern Norton Sound. Bethel recorded wind gusts of 63 mph, which minimally damaged tin roofing of several homes and also damaged 3 small airplanes.									
<b>AKZ018</b>	<b>Kodiak Island-Eastern Alaska Peninsula</b>								
	29	0000AST			0	0			High Wind (G42)
		2359AST							
<b>Kodiak Is. / Eastern Ak Pn</b>									
<b>Kodiak</b>	29	0000AST			0	0			Heavy Rain
		2359AST							
A new record for the date, 3.3 inches, eclipsed the old 2.04 set in 1935. Also, on this date, wind gusts reached 48 mph from the northeast, around the back side of a vigorous low in the Gulf of Alaska.									
<u><b>AMERICAN SAMOA</b></u>									
NOT RECEIVED.									
<u><b>ARIZONA, Central and Northeast</b></u>									
<b>Coconino County</b>									
<b>Leupp</b>	04	1630MST			0	0	0	0	Urban/Sml Stream Fld
		1900MST							
Navajo Nation Police reported six inches of water across portions of State Highway 99 south of Leupp. Standing water was als o reported in the low lying sections of Leupp. Doppler radar estimated 2.5 inches of precipitation in 3 hours over Leupp.									
<b>Coconino County</b>									
<b>Flagstaff</b>	05	1230MST			0	0	0	0	Urban/Sml Stream Fld
An off duty NWS employee reported standing water one foot deep in east Flagstaff. Water up to six inches deep along portions of Highway 66 in east Flagstaff reduced traffic from four to two lanes.									
<b>Navajo County</b>									
<b>Winslow</b>	05	1710MST			0	0	0	0	Funnel Cloud
An Arizona Department of Public Safety officer reported a funnel cloud in Winslow.									

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ARIZONA, Central and Northeast

### **Coconino County**

**Supai**      **11**      **0815MST**  
**1500MST**      **0**      **0**      **0**      **0**      **Urban/Sml Stream Fld**

Heavy rains caused the normally dry Supai Creek to rise and flood the Supai Creek campground.

## ARIZONA, Northwest

### **Mohave County**

**Colorado City**      **09**      **1520MST**      **0**      **0**      **2K**      **Thunderstorm Wind**

Damaging thunderstorm winds downed power lines as they blew through Colorado City.

### **Mohave County**

**5 E Topock**      **09**      **1735MST**      **0**      **0**      **30K**      **Thunderstorm Wind**

### **Mohave County**

**Dolan Spgs**      **09**      **1815MST**      **0**      **0**      **8K**      **Thunderstorm Wind**

Fierce thunderstorm winds overturned a tractor-trailer on Interstate 40 near Topock. The same storms later produced winds in Dolan Springs which caused roof damage to some homes.

### **Mohave County**

**15 N Peach Spgs**      **10**      **2030MST**      **0**      **0**      **Flash Flood**

Flash flooding washed out roads in Peach Springs Canyon. The impassable roads left several people stranded for a few hours.

### **Mohave County**

**Wikieup**      **11**      **0600MST**      **0**      **0**      **Hail (1.00)**

### **Mohave County**

**Wikieup**      **11**      **0605MST**      **0**      **0**      **Hail (1.75)**

Quarter to golfball size hail was reported in Wikieup.

### **Mohave County**

**Colorado City**      **11**      **0823MST**      **0**      **0**      **Urban/Sml Stream Fld**

Minor flooding of roadways and yards was reported with three-quarters (0.75) of an inch of rainfall occurring overnight.

### **Mohave County**

**10 NE Peach Spgs**      **11**      **1240MST**      **0**      **0**      **Flash Flood**

The Tribal Police reported major flash flooding on Diamond Creek Road and over the southern half of the Hualapai Indian Reservation. No damage reports were received.

### **Mohave County**

**5 E Kingman**      **11**      **1535MST**      **0**      **0**      **Hail (0.75)**

### **Mohave County**

**Kingman**      **11**      **1545MST**      **0**      **0**      **Flash Flood**

### **Mohave County**

**15 SE Kingman**      **11**      **1700MST**      **0**      **0**      **Hail (0.75)**

Thunderstorms produced dime size hail and heavy rain across northwest Arizona. Flash flooding was reported in the vicinity of Kingman, but no damage reports were received.

## ARIZONA, South

### **Pima County**

**Tucson to**      **05**      **1530MST**  
**Oro Vly**      **1550MST**      **0**      **0**      **2K**      **Thunderstorm Wind (G56)**

### **Pima County**

**Tucson**      **05**      **1535MST**  
**1615MST**      **0**      **0**      **Urban/Sml Stream Fld**

### **Pinal County**

**Oracle**      **05**      **1600MST**  
**1615MST**      **0**      **0**      **1K**      **Thunderstorm Wind (G56)**

Severe thunderstorms rolling northward through eastern Pima County and southeast Pinal County packed winds estimated up to 65 mph that knocked down some light poles at County Club and Grant roads in Tucson and blew down some trees in Oro Valley.

## ARIZONA, Southwest

### **Pinal County**

**Superior**      **05**      **1725MST**      **0**      **0**      **Thunderstorm Wind (G52)**

### **Gila County**

**2 S Roosevelt**      **05**      **1825MST**      **0**      **0**      **Heavy Rain**

Heavy rains resulted in a mudslide with one vehicle trapped.

### **Maricopa County**

**40 NE Mesa**      **05**      **1825MST**      **0**      **0**      **Flash Flood**

Sheriff's deputies attempted to pull out at least one camper stranded by water at the campground at Apache Lake.



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## ARIZONA, Southwest

### **La Paz County**

Bouse

09 1220MST  
1230MST

0 0

Thunderstorm Wind (G50)

Trees blown down, large Palo Verde limbs damaged, and picnic table blown into a trailer. Heavy rains also resulted in washes running resulting in a closure of part of Highway 72 near Bouse.

### **Maricopa County**

13 W Wintersburg

09 1521MST

0 0

Thunderstorm Wind (G53)

Roof damaged by winds measured at 60 mph at the Palo Verde Nuclear Generating Station.

### **La Paz County**

Ehrenburg

09 1715MST  
2200MST

0 0

Flash Flood

Very intense rainfall with estimated rates of 1 to 2 inches per hour fell over this area. Numerous small washes were flowing with debris carried along in the deeper washes. Highway 95 south of Parker was flooded at mile post 114.

### **La Paz County**

Ehrenburg

09 1715MST

0 0

Thunderstorm Wind (G53)

Estimated 60 mph wind. Store signs blown down.

## ARKANSAS, Central and North Central

### **Polk County**

Cove to  
3 SW Cove

08 1455CST  
1505CST

3

100

0 0

Tornado (F1)

A weak (F1) tornado was spawned near Cove in Polk County. The tornado moved to the southwest of town, downing at least two dozen trees. A roof was partially removed from a house, with roofs blown off of a barn and garage. Small outbuildings were destroyed and a travel trailer was blown over sideways onto a satellite dish. The tornado dissipated about 3 miles southwest of Cove.

### **Van Buren County**

3 N Scotland

20 1430CST

0 0

Hail (0.88)

### **White County**

4 W Bradford

20 1700CST

0 0

Hail (1.75)

### **Newton County**

Lurton

21 1228CST

0 0

Hail (0.75)

### **Lonoke County**

Ward

21 1259CST

0 0

Thunderstorm Wind (G50)

Thunderstorm winds knocked down large tree limbs.

### **Van Buren County**

Shirley

21 1405CST

0 0

Hail (0.75)

### **Pulaski County**

5 E Ferndale

21 1545CST

0 0

Thunderstorm Wind (G50)

Thunderstorm winds knocked down a few trees.

## ARKANSAS, East

NONE REPORTED.

## ARKANSAS, Northwest

### **ARZ029**

Sebastian

04 0000CST  
05 2359CST

0 0

Excessive Heat

September 4 and 5, 1998, both had record-setting heat at the Fort Smith Regional Airport (KFSM).

On September 4, the high temperature of 109 degrees was the hottest temperature ever recorded in the month of September in Fort Smith. Needless to say, this was also a new record high for the day.

On September 5, the high temperature of 104 degrees was enough to tie the record high for the day.

## ARKANSAS, Southeast

NONE REPORTED.

## ARKANSAS, Southwest

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## CALIFORNIA, Extreme Southeast

### **Riverside County**

**30 NW Desert Center**    **04**    **1630PST**       **0**    **0**       **Flash Flood**  
**1730PST**

Very heavy rain resulted in numerous washes running across roads in Joshua Tree National Park.

### **Imperial County**

**Salton City**    **04**    **1750PST**       **0**    **0**       **Thunderstorm Wind (G60)**  
**1815PST**

Large tree uprooted, power poles downed and awnings blown off of structures in the Salton Sea Beach area.

### **Imperial County**

**Imperial**    **09**    **1435PST**       **0**    **0**       **Thunderstorm Wind (G60)**  
**1600PST**

Power lines and power poles downed across parts of Imperial and Niland. Numerous roofs were damaged. At least one billboard was toppled along Highway 86 south of town, and The Movies marquee was shattered. California Highway Patrol investigated a storm-related seven car pileup which occurred between 345 and 348 pm on Highway 111 just south of Aten Road. Some street s were flooded with about an inch /.98/ reported at Imperial. Dense blowing dust reduced visibility to less than 1/8 mile before the heavy rain began.

### **Imperial County**

**Imperial**    **09**    **1513PST**       **0**    **0**       **Thunderstorm Wind (G55)**

Measured peak wind gust at the Imperial Airport.

## CALIFORNIA, North Central

NONE REPORTED.

## CALIFORNIA, Northeast

### **Nevada County**

**(Trk)Truckee/Tahoe A**    **05**    **1508PST**       **0**    **0**    **0**       **Heavy Rain**  
**1521PST**

13 minute rainfall: 0.49 inches recorded by Alert rain gauge at Prosser Dam, 4 miles NE of Truckee.

### **Placer County**

**Brockway**    **05**    **1533PST**       **0**    **0**    **0**       **Heavy Rain**  
**1618PST**

Spotter at Brockway Pass reported 45 minute rainfall of 1.00 inch due to thunderstorm.

### **Placer County**

**Kings Beach**    **05**    **1545PST**       **0**    **0**    **0**       **Heavy Rain**  
**1615PST**

30 minute rainfall: 1.22 inches due to thunderstorm.

### **Placer County**

**Tahoe City**    **26**    **0800PST**       **0**    **0**    **0**       **Waterspout**  
**0805PST**

Estimated eleven waterspouts reported over Lake Tahoe by various spotters on the north shore of the lake.

### **Placer County**

**Kings Beach**    **26**    **1000PST**       **0**    **0**    **1K**       **Tstm Wind/Hail**  
**1010PST**

Hail up to 0.5 inches in diameter, covering roadways, and causing a car accident near Kings Beach, CA. Reported by Placer County Sheriff.

### **El Dorado County**

**South Lake Tahoe**    **28**    **1919PST**       **0**    **0**    **0**       **Hail (0.75)**  
**1920PST**

Very brief hail estimated up to 0.75 inch diameter along the south shore of Lake Tahoe near Emerald Bay. Reported by California Highway Patrol.

## CALIFORNIA, Northwest

### **CAZ004**

#### **Upper Trinity River**

**03**    **1300PST**       **0**    **0**       **Other**

A large dust devil near Peanut, 8S Hayfork. It crossed an orchard then damaged a barn. The dust devil was on the ground for 1/4 mile.

### **Trinity County**

**3 S Hayfork**    **16**    **1545PST**       **0**    **0**       **Hail (0.75)**

Hail up to 3/4 inch diameter accumulated to 4 inches deep. Much was still on ground the next day.

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property Damage	Crops	

September 1998

## CALIFORNIA, South Central

**CAZ021 Southern San Joaquin Valley**

<b>01</b>	<b>1400PST</b>	<b>0</b>	<b>2</b>	<b>Excessive Heat</b>
<b>03</b>	<b>1800PST</b>			

The first three days of September 1998 had much above normal temperatures for California Zones 20 and 21, the Central and Southern San Joaquin Valley. The Southern San Joaquin Valley was especially warm with humidities averaging near 30 percent in the afternoons with temperatures at or above 105 degrees F. Bakersfield had a high of 105 degrees each of the first three days with minimum temperatures only lowering to 74, 78, and 73, respectively. Warmest spots in the South Valley climbed up to 109 degrees during this same period. Two reports of heat exhaustion were received for September 2 in Bakersfield indicative of the high temperatures and high humidity combination. Central Valley temperatures were only slightly lower with readings in the 103 to 107 degree range. However overnight high minimum temperature records were established for Fresno for the first 4 days in September due to the combination of high humidities and/or cloud cover. Air quality was considered "unhealthy" in combination with the high temperatures in these two California zones.

**Kern County**

<b>2 WNW Arvin to</b>	<b>02</b>	<b>1409PST</b>	<b>0</b>	<b>0</b>	<b>50K</b>	<b>Thunderstorm Wind</b>
<b>5 SW Bakersfield</b>		<b>1445PST</b>				

**Kern County**

<b>10 ENE Bakersfield</b>	<b>02</b>	<b>1409PST</b>	<b>0</b>	<b>0</b>	<b>Lightning</b>
		<b>1800PST</b>			

A thunderstorm from the northeast moved over the far southeastern portion of the San Joaquin Valley during the mid-afternoon hours. Lightning strikes accounted for 4 grass fires during the event. The largest fire consumed 1,500 acres of grass east of Bakersfield along Breckenridge Road. A microburst brought low visibilities in blowing dust around Bakersfield including Interstate-58 east of the city that lead to several traffic accidents and downed power lines leaving 11,000 customers without power. Visibility dropped to 30 feet on Highway 58 on the east side of Bakersfield. Estimated wind speeds were as high as 45 Knots. Of interest are indications that two microbursts may have occurred based on wind direction shifts received from the Lamont ALERT (automated) weather station. (One at 1412 PST and another at 1427 PST).

**CAZ021 Southern San Joaquin Valley**

<b>04</b>	<b>0000PST</b>	<b>0</b>	<b>0</b>	<b>5M</b>	<b>Unseasonal Rain</b>
	<b>2300PST</b>				

Sub-tropical moisture had provided high humidities in combination with much above normal temperatures for the San Joaquin Valley for the first three (3) days in September. The remnants of East Pacific Hurricane Isis sheared northeastward from the Gulf of California by September 3rd but due to the southeast flow aloft around a weak low circulation off the Southern California Coast, the moisture was brought back to the northwest over the NWS San Joaquin Valley CWFA. With the moist sub-tropical airmass, steady rain with some embedded thunderstorms brought rainfall to the seasonally dry San Joaquin Valley. Agriculture, especially vintners and raisin growers, took monetary loss either directly due to rain or indirectly due to the additional steps to treat the increase in fungus activity on produce. While not "heavy" but "infrequent", this rain led Bakersfield to a one-day rainfall record on September 4th with 0.27" in 24-hours (old mark of 0.17" set in 1963). In the neighboring Kern Mountains, Tehachapi received 0.94 inches during the day. Rain was a little less steady northward through the CWFA counties but was showery. Other valley reports: Fresno...trace, Madera...trace, Merced...trace, Lemoore...0.05", Porterville...0.01", Kettleman...0.04", Taft...0.29". Edwards AFB...0.64", Mojave...0.50", Yosemite...0.03", Lodgepole...0.48", Wishon...0.27", Frazier Park...1.53".

**CAZ020 Central San Joaquin Valley**

<b>09</b>	<b>0100PST</b>	<b>0</b>	<b>0</b>	<b>Early Rain</b>
	<b>0830PST</b>			

Coldfrontal passage through the northern portion of Central California on Sept 9th did not provide any especially inclement weather. However, it is worth mentioning because of the previous elongated rainy season supported by an El Nino in the mid-Pacific. The late arrival of summer (early July) in combination with some "cool" season shower activity from the 9th's weak coldfrontal passage began to cause problems. The growing season was offset later in the year and the "normal" arrival of fall was not a good combination for besieged local agriculture.

## CALIFORNIA, Southeast

NONE REPORTED.

## CALIFORNIA, Southwest

**Orange County**

<b>8 NE Lake Forest to</b>	<b>01</b>	<b>0000PST</b>	<b>0</b>	<b>0</b>	<b>Wild/Forest Fire</b>
<b>2 NE Lake Forest</b>	<b>04</b>	<b>0500PST</b>			

**Riverside County**

<b>Hemet to</b>	<b>01</b>	<b>0000PST</b>	<b>0</b>	<b>0</b>	<b>Wild/Forest Fire</b>
<b>Norco</b>	<b>03</b>	<b>0700PST</b>			

Wild fires started by lightning on the 31st of August continued through the first few days of the month. As thunderstorm activity diminished and cooler weather developed, fire fighters were able to contain these large fires. For total damage and acreage burned, refer to Storm Data entries on August 31st.



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## CALIFORNIA, Southwest

**CAZ061 Coachella Valley**  
**09 1550PST** **0 4** **Dust Storm**  
**1630PST**

A severe thunderstorm moving through the eastern part of Riverside County, generated a gust front that moved through southeastern portions of the Coachella Valley. Winds gusting to at least 35 mph picked up considerable amounts of dust and sand, reducing visibility to near zero for a short time. At the same time 8 vehicles were involved in a chain-reaction accident on Highway 86 in Mecca. Four people were injured seriously and required hospitalization.

**San Diego County**  
**1 E Mission Beach** **27 0801PST** **0 0** **Funnel Cloud**  
**0803PST**

Unstable conditions associated with a weak surface trough spawned a funnel cloud over Mission Bay. A pilot reported seeing the funnel dip below cloud base for only a few seconds.

## CALIFORNIA, Upper

NONE REPORTED.

## CALIFORNIA, West South Central

**Los Angeles County**  
**San Dimas** **02 1405PST** **0 0** **Thunderstorm Wind (G70)**  
**1415PST**

**Los Angeles County**  
**Diamond Bar** **02 1409PST** **0 0** **Thunderstorm Wind (G52)**  
**1420PST**

**Los Angeles County**  
**Pomona** **02 1445PST** **0 0** **Thunderstorm Wind (G52)**  
**1455PST**

**Los Angeles County**  
**Pomona** **02 1455PST** **0 0** **Funnel Cloud**  
**1505PST**

**Los Angeles County**  
**Diamond Bar** **02 1500PST** **0 0** **Flash Flood**  
**1600PST**

**Los Angeles County**  
**Pomona** **02 1500PST** **0 0** **Flash Flood**  
**1600PST**

**Los Angeles County**  
**Walnut** **02 1500PST** **0 0** **Flash Flood**  
**1600PST**

A series of severe thunderstorms affected the San Gabriel Valley, bringing strong winds and heavy rain. The strong thunderstorm winds knocked down numerous trees and power lines across the area. In Pomona, several houses had parts of their roofs blown off. Also, a helicopter pilot reported a funnel cloud near the Pomona area. The heavy rain produced widespread flash flooding across the valley. In some areas, motorists were forced to the roofs of their cars. In Walnut, the heavy rain collapsed the roof of a Von's Supermarket.

**Ventura County**  
**Thousand Oaks** **02 1435PST** **0 0** **Thunderstorm Wind (G52)**  
**1450PST**

A severe thunderstorm produced strong winds in the community of Thousand Oaks. Twelve power poles were knocked down along Thousand Oaks Boulevard. Six automobiles were struck by these fallen power poles.

**Ventura County**  
**Ventura** **02 1555PST** **0 0** **Thunderstorm Wind (G50)**  
**1605PST**

A line of severe thunderstorms produced strong winds across southern Ventura county. In Ventura, the winds knocked down several power poles.

**Los Angeles County**  
**Saugus** **02 1625PST** **0 0** **Thunderstorm Wind (G52)**  
**1635PST**

A severe thunderstorm produced damaging winds across the Saugus area. At the Lily of the Valley Mobile Home Village, numerous trees were uprooted. Also, several automobiles and roof awnings were damaged.

## CALIFORNIA, Western

NOT RECEIVED.

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
Killed									
Injured									
Property									
Crops									
Character of Storm									
COLORADO, Central and Northeast									
Larimer County									
6 NW Wellington	01	0400MST 0600MST			0	0			Flash Flood
Strong thunderstorms produced 4.5 inches of rainfall in the span of 2 hours. Box Elder Creek reportedly jumped its banks and flooded a nearby road.									
Washington County									
Anton	19	2140MST			0	0	200K		Thunderstorm Wind (G80)
Damaging thunderstorm winds toppled the leg of a grain elevator in Anton. Some trees in the immediate area were also split. The peak wind gust was estimated.									
Larimer County									
3 N Loveland	20	1719MST			0	0			Hail (0.75)
Larimer County									
2 N Loveland	20	1720MST 1727MST			0	0			Hail (0.75)
Larimer County									
4 NE Loveland	20	1727MST			0	0			Hail (0.75)
Weld County									
4 S Buckingham	20	1935MST			0	0			Hail (1.00)
Morgan County									
13 NNW Ft Morgan	20	1945MST	0.5	100	0	0	0	0	Tornado (F0)
Weld County									
8 W New Raymer	20	2001MST			0	0			Hail (0.75)
Morgan County									
12 N Ft Morgan	20	2019MST			0	0			Hail (0.75)
A tornado touched down in an open field. No damage was reported. In addition to the tornado however, severe thunderstorms produced heavy rain and large hail. Hail was reportedly piled up 12 to 18 inches deep in spots. As a result, several county roads in northern Morgan County were washed out.									
Weld County									
1 S Windsor	20	2230MST			0	0	500K	0	Lightning
Lightning struck a colonial style home south of Windsor. The ensuing fire caused extensive damage to the home making it unliveable.									
Phillips County									
Holyoke	21	0030MST			0	0		0	Thunderstorm Wind (G50)
Strong thunderstorm winds blew the awning off a business in Holyoke. The time of the incident was approximated.									
COLORADO, East Central									
Kit Carson County									
11 SE Stratton	24	0155MST			0	0			Hail (1.00)
Kit Carson County									
9 N Stratton	29	2045MST 2055MST			0	0			Hail (0.75)
COLORADO, South Central and Southeast									
Prowers County									
Lamar	23	1500MST			1	3			Lightning
Terry Hendricks, 32, died and three others were injured while working at a hog farm when lightning struck. Hendricks was carrying a metal object when the lightning struck and died at the scene. The other three men were airlifted to a Denver area hospital for burns and residual tingling sensation. M31OU									
Rio Grande County									
6 NE Del Norte	30	1420MST 1425MST			0	0			Hail (1.50)
Saguache County									
7 SW La Garita	30	1425MST 1430MST			0	0			Hail (0.75)
Saguache County									
La Garita	30	1441MST 1446MST			0	0			Hail (0.75)
Saguache County									
5 N Center	30	1520MST 1525MST			0	0			Hail (0.75)

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
COLORADO, South Central and Southeast									
Baca County 2 NW Pritchett	30	1818MST 1823MST			0	0			Hail (0.75)
Baca County Pritchett	30	1830MST 1835MST			0	0			Hail (1.00)
Las Animas County 18 NNE Kim	30	1819MST 1824MST			0	0			Hail (0.75)
Las Animas County 10 NW Tyrone	30	1830MST 1835MST			0	0			Hail (0.75)
Las Animas County 16 NNE Kim	30	1845MST 1850MST			0	0			Hail (0.75)
Baca County 31 SE Springfield	30	1943MST 1948MST			0	0			Hail (0.75)
Baca County 20 SSE Walsh	30	2005MST 2010MST			0	0			Hail (0.75)
COLORADO, West									
Mesa County Fruita	12	1015MST 1030MST			0	0			Heavy Rain
About a half-inch of rain fell within 15 minutes which produced street flooding.									
Mesa County 5 NE Palisade	12	1130MST 1200MST			0	0			Heavy Rain
Heavy rain resulted in a mud slide partially covering I-70 in De Beque Canyon.									
Garfield County Rifle	12	1200MST			0	0			Heavy Rain
Heavy rain in the Rifle area resulted in street flooding and ditches rising to bankfull.									
Montezuma County 2 E Cortez	16	1340MST 1345MST			0	0			Funnel Cloud
A long and narrow funnel cloud extended two-thirds of the way towards the ground.									
Mesa County Clifton	29	0600MST			0	1			Lightning
A man was loading a trailer when a horizontal branch of lightning off of the main lightning bolt struck a 12-foot high pole on the trailer next to the man. The man was jolted off the trailer, landing 20 feet away. He received minor burns and some holes in his clothing.									
La Plata County Durango	29	1330MST 1430MST			0	0	6K		Heavy Rain
Two-thirds to three-quarters of an inch of rain fell primarily within a 30 minute period in the Durango area. This resulted in street flooding and rock slides. A two-foot diameter boulder smashed the front of a van near the intersection of State Highway 3 and U.S. Highway 160 in the south part of Durango.									
COZ006	Grand Valley/Grand Junction And Vicinity								
	29	1535MST 1538MST			0	0			High Wind (G45)
A thunderstorm produced microburst winds measured to 52 MPH (45 knots) two miles west of Fruita.									
CONNECTICUT, Northeast									
CTZ002>004	Hartford - Tolland - Windham								
	15	2345EST			0	0			Strong Winds
	16	0017EST							
Thunderstorms moved through northern Connecticut around midnight producing strong winds which downed several trees. One 35-foot tree was blown down in Suffield in Hartford County, and one tree was blown down in Tolland in Tolland County. Also, one tree was reported blown down in the town of Ashby in Windham County.									

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## CONNECTICUT, Northeast

### **CTZ002**

### **Hartford**

**27 1320EST**

**0**

**0**

**Record Heat**

The high temperature of 88 degrees at Bradley International Airport in Windsor Locks broke the previous record high of 84 degrees set in 1920.

## CONNECTICUT, Northwest

### **Litchfield County**

### **Litchfield**

**27 0040EST**

**0**

**0**

**Hail (0.75)**

The remnants of a squall line that moved into northwest Connecticut from eastern New York, produced dime size hail at Washington Depot during the early morning hours of the 7th.

## CONNECTICUT, Southern

### **Fairfield County**

### **Norwalk**

**07 1400EST**

**0**

**0**

**Hail (0.75)**

### **Fairfield County**

### **Norwalk**

**07 1400EST**

**0**

**0**

**Thunderstorm Wind (G52)**

### **New Haven County**

### **Ansonia**

**07 1400EST**

**0**

**0**

**Thunderstorm Wind (G52)**

As a line of severe thunderstorms moved across the area, they produced high winds that downed large tree limbs in Ansonia and Norwalk. They also produced 3/4-inch diameter hail in Norwalk.

### **New Haven County**

### **Guilford**

**27 1915EST**

**0**

**0**

**Thunderstorm Wind (G50)**

### **New London County**

### **Norwich**

**27 1935EST**

**0**

**0**

**Thunderstorm Wind (G50)**

As severe thunderstorms moved southeast, they produced high winds that downed trees in Guilford and Norwich.

## DELAWARE

NOT RECEIVED.

## DISTRICT OF COLUMBIA

### **District Of Columbia**

### **Northeast Portion**

**17 2030EST**

**0**

**0**

**1K**

**Lightning**

A thunderstorm moving through the District of Columbia produced damaging lightning. One strike charred a pine tree at Ashley Terrace, 1/2 mile north of the National Zoo at 9:30 PM EDT. Several telephone lines were also hit by lightning, briefly interrupting service to local customers.

## FLORIDA, East Central

### **Orange County**

### **Orlando**

**02 1710EST**

**0**

**0**

**Thunderstorm Wind (G50)**

Thunderstorm winds blew down trees and power lines in Orlando.

### **Brevard County**

### **Port Canaveral**

**02 1940EST**

**2**

**6**

**0**

**1**

**6M**

**Tornado (F1)**

An F1 tornado touched down at Port Canaveral damaging the roofs on eight condominiums, a mobile home, a fire station and four businesses. One automobile, a tractor trailer, and a boat on a trailer were overturned. Fourteen vehicles were damaged.

### **Orange County**

### **2 SE Orlando Intl Arpt**

**03 1255EST**

**0**

**0**

**Funnel Cloud**

### **Brevard County**

### **Cocoa**

**03 1335EST**

**0**

**0**

**Thunderstorm Wind (G50)**

Thunderstorm winds blew down trees and power lines in Cocoa and northwest of Cocoa along Interstate 95.

### **Indian River County**

### **Sebastian**

**25 1050EST**

**2**

**40**

**0**

**0**

**700K**

**Tornado (F1)**

A tornadic waterspout move on shore from the Indian River Lagoon and crossed the north part of Sebastian knocking down trees and severely damaging the roof of a large factor building.

## FLORIDA, Northeastern

### **Duval County**

### **Mayport**

**01 1500EST**

**0**

**0**

**2K**

**Thunderstorm Wind**

Large trees were blown down.

### **Duval County**

### **Jacksonville**

**01 1510EST**

**0**

**0**

**Hail (1.00)**

Downtown

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>FLORIDA, Northeastern</u></b>									
<b>Duval County</b> <b>Ft Caroline Shrs</b>	<b>01</b>	<b>1530EST</b>			<b>0</b>	<b>0</b>	<b>0.50K</b>		<b>Thunderstorm Wind</b>
		Large tree limbs were blown down.							
<b>Marion County</b> <b>Ocala</b>	<b>02</b>	<b>1545EST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Marion County</b> <b>Dunnellon</b>	<b>02</b>	<b>1700EST</b>			<b>0</b>	<b>0</b>	<b>2.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Putnam County</b> <b>Palatka</b>	<b>02</b>	<b>1740EST</b>			<b>0</b>	<b>0</b>	<b>2.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Gilchrist County</b> <b>Trenton</b>	<b>02</b>	<b>1800EST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Alachua County</b> <b>Gainesville</b>	<b>02</b>	<b>1805EST</b>			<b>0</b>	<b>0</b>	<b>2.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Marion County</b> <b>Ocala</b>	<b>02</b>	<b>1815EST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Putnam County</b> <b>Johnson</b>	<b>02</b>	<b>2050EST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Clay County</b> <b>Doctors Lake</b>	<b>02</b>	<b>2120EST</b>			<b>0</b>	<b>0</b>	<b>0.50K</b>		<b>Thunderstorm Wind</b>
		Large trees were blown down.							
<b>Clay County</b> <b>Green Cove Spgs</b>	<b>02</b>	<b>2145EST</b>			<b>0</b>	<b>0</b>	<b>2.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Duval County</b> <b>Jacksonville</b>	<b>02</b>	<b>2208EST</b>			<b>0</b>	<b>0</b>	<b>4.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Gilchrist County</b> <b>Trenton</b>	<b>03</b>	<b>0145EST</b>			<b>0</b>	<b>0</b>	<b>3K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Columbia County</b> <b>Ft White</b>	<b>03</b>	<b>0200EST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Suwannee County</b> <b>Live Oak</b>	<b>03</b>	<b>0200EST</b>			<b>0</b>	<b>0</b>	<b>0.50K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Hamilton County</b> <b>Jasper</b>	<b>03</b>	<b>0300EST</b>			<b>0</b>	<b>0</b>	<b>2.5K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>Marion County</b> <b>Lake Weir</b>	<b>03</b>	<b>0330EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
		Large trees and power lines were blown down.							
<b>FLZ031&gt;032-036-038</b>	<b>Bradford - Clay - Alachua - Flagler</b>								
	<b>03</b>	<b>0630EST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>High Wind</b>
		<b>1220EST</b>							
		Winds associated with Hurricane Earl. Large trees and power lines were blown down.							
<b>Suwannee County</b> <b>7 W Live Oak to</b> <b>8 WNW Live Oak</b>	<b>29</b>	<b>2330EST</b>	<b>2</b>	<b>100</b>	<b>0</b>	<b>5</b>	<b>600K</b>		<b>Tornado (F2)</b>
		The tornado demolished seven homes and damaged at least 5 others. Two residents received serious injuries.							
<b>Alachua County</b> <b>Gainesville</b>	<b>30</b>	<b>0630EST</b>			<b>0</b>	<b>0</b>	<b>40K</b>		<b>Thunderstorm Wind</b>
		Five cars damaged. Large trees and power lines were blown down.							

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## FLORIDA, Northeastern

### Alachua County

Newmans Lake	30	1250EST 1251EST			0	0			Waterspout
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## FLORIDA, Northwest

**FLZ008>019-026>029-034 Coastal Walton - Holmes - Washington - Jackson - Bay - Calhoun - Gulf - Franklin - Gadsden - Leon - Jefferson - Madison - Liberty - Wakulla - Taylor - Lafayette - Dixie**

02	1200EST				2	2	6.0M		Hurricane
03	1800EST								

Hurricane Earl, a minimal Category 1 storm, came ashore near Panama City, FL early Thursday, September 3, 1998. Earl weakened to a tropical storm as it tracked northeastward through Central Georgia. Two-day rainfall totals ranged from 12.46 inches at Panama City, FL to 4.27 inches at Cross City, FL. The peak 10-minute wind recorded at the Cape San Blas C-MAN buoy was 48 knots with a peak gust of 61 knots. The lowest sea-level pressure recorded was 987 mb at the Panama City-Bay City International Airport. The storm surge along the Florida Big Bend coast ranged from 6 to 12 feet above normal tide levels. Significant beach erosion occurred along Coastal Walton County as well as Carrabelle Beach and Alligator Point. Bay County experienced the worst urban and small stream flooding since Hurricane Opal in 1995. Flooding occurred along the St. Marks River at Newport, FL where a crest of eight feet was measured. Two fishermen died when their boat capsized in 16 to 20 foot seas offshore of Panama City Beach, FL. Two persons were injured, one each in Walton and Jackson Counties. Bay, Gulf, Franklin, Wakulla, Taylor, and Dixie counties were declared federal disaster areas.

In Bay County, fresh water flooding damaged 1,049 homes, three businesses, and 50 other structures. Three homes were destroyed. The Gulf Highlands subdivision in Panama City Beach suffered the worst flooding with up to five feet of water inside homes. The Edgewater Beach Resort and Glades subdivision also sustained severe flooding. Power outages affected 7,100 residents. Other Bay County municipalities reported minor flood damage and numerous trees down. Several roads, including FL 77, were temporarily closed until flood waters receded. Holmes and Jackson counties reported several county roads washed out, numerous downed trees and power lines, and minor damage to three homes. A few county roads were closed to flooding and downed trees in Walton and Washington counties. Erosion caused by heavy flooding damaged two roads in Liberty County. Localized flooding with some downed trees and power lines occurred in Leon and Gadsden counties. Throughout Madison, Lafayette, and Jefferson counties, there was minor damage from downed trees and power lines as well as some secondary roads closed to flooding. Strong winds and flooding damaged one home, a state park, and closed 10 county roads in Calhoun County. Across Gulf County, strong winds and flooding damaged 300 homes and disrupted power for 8,700 customers. At Port St. Joe, storm surge flooding damaged 14 businesses and caused a water main break at the Lighthouse Utilities facility. In Franklin County, storm surge flooding affected 136 homes and 15 businesses. FL 65, 98, 300, and the St. George Causeway were closed to high water. Alligator Point Road washed out stranding 50 people at Alligator Point. Throughout Wakulla County, high winds and coastal flooding damaged 216 homes and businesses. Significant wind and flood damage was reported at Live Oak Island, Spring Creek, Ochlocknee, Oyster Bay, Panacea, Medart, Sopchoppy, and St. Marks. Power was disrupted for 1,000 customers and the St. Marks Wastewater facility. Taylor County officials reported severe coastal flooding at Dekle and Keaton Beach with moderate flood damage to nine other coastal communities. A total of 55 single-family units, six residences, and five businesses were affected. CR 361 closed and water four feet deep over roads near the Econfina River. In Dixie County, coastal flooding destroyed five homes and damaged 39 others. Severe flooding occurred in the town of Suwannee and 50 pumps were destroyed at the Suwannee Wastewater Treatment facility. CR 351 at Horseshoe Beach was washed out.

M68BO, M34BO

### Franklin County

East Pt	02	2130EST	1	.1	0	0	150K		Tornado (F1)
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Six homes suffered moderate to severe damage as an F1 tornado swept across St. George Island.

### Walton County

De Funiak Spgs	28	0845EST	0.5	0	0	0	50K		Tornado (F0)
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A tornado touched down near the Valley View subdivision along FL 183 about four miles northeast of De Funiak Springs. The tornado lifted the roof of a residence and neighboring shed, and pulverized a pump house. Debris was strewn across the highway and over adjacent timberland.

### Bay County

Bid A Wee	28	1245EST	2	.2	0	0	250K		Tornado (F1)
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An F1 tornado struck the Bid-A-Wee subdivision west of Panama City. The tornado damaged 23 homes surrounding the Surfside Middle School.

### Bay County

Westbay	29	0915EST	3	.1	0	1	125K		Tornado (F1)
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An F1 tornado touched down in West Bay. The tornado damaged the West Bay Holiness Community Church off CR 388. The church's roof was lifted off and its steeple toppled. The tornado skipped northward across FL 79 and Vinson Rd, north of the Woodville subdivision where several large trees were uprooted. A woman was injured by flying glass when the tornado demolished the roof of her home and blew in a window and glass door.



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## FLORIDA, Northwest

### Madison County

#### Hopewell

**29 1900EST 0.5 0 0 0 25K Tornado (F0)**

A convenient store received minor damage and several trees were uprooted when a F0 tornado briefly touched down at the intersection of FL 360 and Interstate 10.

### Dixie County

#### Fletcher

**30 0600EST 1 .1 0 0 100K Tornado (F0)**

An F0 tornado destroyed two mobile homes and uprooted several trees 10 miles north of Old Town.

**FLZ007>019-026-028>029-034**

**Inland Walton - Coastal Walton - Holmes - Washington - Jackson - Bay - Calhoun - Gulf - Franklin - Gadsden - Leon - Jefferson - Madison - Liberty - Taylor - Lafayette - Dixie**

**28 0000EST 0 1 62.0M Hurricane**  
**30 1200EST**

Hurricane Georges, a Category 2 storm, made landfall near Biloxi, MS early Monday, September 28, 1998. A peak wind gust of 52 knots was measured at the Gulf of Mexico data buoy 85 nautical miles south of Panama City. Georges produced storm surges of 6 to 12 feet along the Florida Panhandle coast and 3 to 5 feet along the Big Bend coast. Torrential rainfall amounts of 12 to 24 inches were common over Southeast Alabama and the Florida Panhandle with 5 to 10 inches over Southwest Georgia and the Big Bend. These rains swelled area rivers, creeks, and streams well above flood stage. Eight people were injured as numerous tornadoes were spawned by the remnants of Tropical Depression Georges across Southeast Alabama, Southwest Georgia, and Northwest Florida. Georges pushed 1998 agricultural losses in Georgia over \$800 million. Beach erosion along the Panhandle coast was moderate to severe. Bay County experienced its worst beach erosion since Hurricane Eloise in 1975. Liberty, Calhoun, Bay, Holmes, Washington, Gadsden, Walton, Gulf, Franklin, Jackson, Wakulla, Coffee, and Geneva counties were declared federal disaster areas.

As a result of the runoff from Georges' torrential rains, the following area rivers were affected:

Apalachicola at Blountstown, FL (FS 15 ft), crest 18.9 ft (10/2/98)  
Aucilla at Lamont, FL (FS 9 ft), crest 13.9 ft (10/3/98)  
Chipola at Altha, FL (FS 22 ft), crest 22.9 ft (10/2/98)  
Choctawhatchee at Newton, AL (FS 19 ft), crest 21.6 ft (10/1/98)  
Choctawhatchee at Geneva, AL (FS 23 ft), crest 32 ft (10/1/98)  
Choctawhatchee at Caryville, FL (FS 12 ft), crest 17.7 ft (10/2/98)  
Ochlockonee at Thomasville, GA (FS 15 ft), crest 18.6 ft (10/2/98)  
Ochlockonee at Havana, FL (FS 25 ft), crest 28.8 ft (10/3/98)  
Ochlockonee at Bloxham, FL (FS 22 ft), crest 22.0 ft (10/2/98)  
Pea at Elba, AL (FS 30 ft), crest 33.9 ft (9/30/98)  
St. Marks at Newport, FL (FS 7 ft), crest 9.5 ft (10/3/98)  
Withlacoochee at Valdosta, GA (FS 13 ft), crest 15.2 ft (10/2/98)

Large battering waves undermined piers and walkways along Front Beach Rd in Panama City Beach. At Carralon Beach, a portion of seawall breached forcing a five-foot wall of water collapsed the first floor of the Pinnacle Port Resort meeting room. Strong winds blew metal awnings off several businesses and storm surge flooding washed out portions of Front Beach and Thomas Rds in Panama City Beach. Calhoun County officials reported 15 to 20 homes surrounded by high water and severe erosion to numerous unpaved county roads. Across Coastal and Inland Walton County, storm surges of 10 to 12 feet above tide levels caused extensive beach erosion and undermined numerous coastal structures. Considerable coastal flooding damaged several homes and businesses. 132 roads were closed including Interstate 10 from Mossy Head to Crestview. Five people stranded on the Shoal River Bridge near CR 1087 were rescued by boat. An earthen dam at Kings Lake threatened to breach and 100 residents were evacuated. The Alaqua Creek overflowed its banks and flooded homes from Portland to Freeport. Dixie County experienced minor coastal flooding with many county roads and residences flooded. Franklin County reported FL 30 and U.S. 98 closed to flooding and erosion from Carrabelle Park to 4th St in Eastpoint. A few roads were closed to flooding, scattered trees and power lines down, and six homes damaged in Gadsden County. Gulf County officials reported numerous roads closed and flooding of some homes and businesses. In Holmes County, 30 roads flooded and 20 bridges washed out. An emergency evacuation of 300 residents along creeks between FL 77 and 79. Severe damage to Caryville campsites along the Choctawhatchee River. The Purdue Farms was damaged by flooding killing 48,000 chickens. Jackson County reported several trees down, some onto power lines in the Woodrest community. Flood waters closed FL 2 in Campbellton and 15 other county roads. Across Jefferson County, numerous county roads experienced flood damage with 13 closed. A few roads were closed to flooding, and isolated tree and power line damage occurred throughout Lafayette County. Leon County officials reported some urban and small stream flooding as well as scattered reports of downed trees and power lines. FL 20 was closed from Tallahassee west to the Liberty-Leon County line. 1,800 customers in Northeast Tallahassee lost power when a large tree fell onto a utility line. Liberty County experienced flooding of seven homes and one business. Several county roads were damaged by erosion and numerous others affected by high water. Taylor County reported some minor coastal flooding and a few roads closed to high water. High winds downed several large trees onto utility lines one mile west of Crawfordville and minor coastal flooding was observed in Wakulla County. Flooding damaged nine roads and forced the evacuation of residents along the Choctawhatchee River at Caryville in Washington County.

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>FLORIDA, Southern</u></b>									
<b>Broward County</b> <b>Pompano Beach</b>	<b>01</b>	<b>1332EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel cloud observed three blocks south of Sample Rd. on US-1.									
<b>Broward County</b> <b>Oakland Park</b>	<b>01</b>	<b>1446EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel cloud sighted near I-95 and Oakland Park Blvd.									
<b>Broward County</b> <b>Plantation</b>	<b>01</b>	<b>1551EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel observed by sheriffs officer near I-595 and Flamingo Rd.									
<b>Monroe County</b> <b>7 NW Key West Intl Arpt</b>	<b>04</b>	<b>1115EST</b> <b>1123EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
<b>Monroe County</b> <b>3 E Key West Intl Arpt</b>	<b>04</b>	<b>1251EST</b> <b>1255EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
<b>Broward County</b> <b>Tamarac</b>	<b>05</b>	<b>0945EST</b>			<b>0</b>	<b>1</b>			<b>Lightning</b>
A 54 year old woman was struck by lightning on the 16th hole at Tam O'Shanter golf course. She was taken to the hospital in critical condition.									
<b>Monroe County</b> <b>Key West Intl Arpt</b>	<b>05</b>	<b>1220EST</b> <b>1230EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
<b>Dade County</b> <b>Miami</b>	<b>05</b>	<b>1220EST</b> <b>1240EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel cloud first reported near NW 18 St. between 2nd Ct. and 3rd Ave.									
<b>Dade County</b> <b>Miami Shrs</b>	<b>05</b>	<b>1240EST</b>	<b>0.1</b>	<b>20</b>	<b>0</b>	<b>0</b>			<b>Tornado (F0)</b>
F0 tornado had brief touchdown at NE 94th St. and N Miami Ave. Power lines and some trees were downed.									
<b>Monroe County</b> <b>5 N Key West Intl Arpt</b>	<b>05</b>	<b>1320EST</b> <b>1340EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
<b>Collier County</b> <b>5 NW Marco</b>	<b>07</b>	<b>1745EST</b> <b>1800EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
<b>Dade County</b> <b>1.5 E Biscayne Park</b>	<b>09</b>	<b>0820EST</b> <b>0835EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
Two waterspouts were observed by Miami Beach Patrol.									
<b>Dade County</b> <b>5 SE Cutler Ridge</b>	<b>10</b>	<b>0910EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
<b>Dade County</b> <b>Key Biscayne</b>	<b>10</b>	<b>1422EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
Waterspout was observed by park ranger near Soldier Key.									
<b>Collier County</b> <b>Naples</b>	<b>15</b>	<b>1120EST</b> <b>1135EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel cloud was observed about 3nm east of the court.									
<b>Collier County</b> <b>East Naples</b>	<b>15</b>	<b>1120EST</b> <b>1140EST</b>	<b>1</b>	<b>20</b>	<b>0</b>	<b>0</b>			<b>Tornado (F0)</b>
The f0 tornado touched down near Quail Hollow along Rattlesnake Hammock Road and moved to the west northwest to the Rivier a Golf Course. Storefront glass was shattered. Signs...tree limbs and street lights were blown down. Roofs...carports and patios were destroyed at mobile home park.									
<b>Dade County</b> <b>Florida City</b>	<b>16</b> <b>17</b>	<b>1700EST</b> <b>0500EST</b>			<b>0</b>	<b>0</b>			<b>Flood</b>
The ground was well saturated from previous days rain. Radar rainfall estimated amounts ranging from 4 to 8 inches. Homestead Airforce Base recorded 4.75 inches. At least eight homes were flooded with about 6 inches of water. Widespread street flooding was									

# Storm Data and Unusual Weather Phenomena

September 1998

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
FLORIDA, Southern									
also reported.									
Collier County									
Marco	18	1800EST 1810EST			0	0			Funnel Cloud
Two funnel clouds moving southeast at north end of Marco Island.									
Broward County									
10 E Dania	19	1012EST			0	0			Waterspout
Dade County									
15 W West Miami	22	1745EST 1805EST			0	0			Funnel Cloud
Numerous sightings of funnel cloud over everglades west of Tamiami Airport.									
Monroe County									
1.5 SE Key West Intl Arpt	23	1500EST			0	0			Funnel Cloud
Dade County									
Key Biscayne to Cutler Ridge	24	0808EST 0840EST	15	40	0	0			Tornado (F0)
Radar indicated tornadic signature was indicated offshore cutler ridge embedded in a spiral band of hurricane Georges. As the TVS passed near the Fowey Rocks C-MAN wind from 080 degrees gusting to 67 knots was recorded at 0813 pm est. The waterspout continued moving to the southwest and moved onshore near Old Cutler Road and SW 184th st. Most of the resulting damaged wa s downed powerlines and trees. Some damage was done to homes and automobiles as a result of the downed trees.									
Dade County									
Miami Lake	24	0910EST 0920EST	0.3	20	0	0			Tornado (F0)
Radar indicated tornadic signature was indicated over Bal Harbour embedded in spiral band of hurricane Georges prior to touchdown. Most of the resulting damage was downed powerlines and trees. Some damage occurred to homes and automobiles due to fallen trees.									
FLZ074									
Coastal Dade									
24	1700EST				0	0			Tropical Storm
25	1300EST								
Tamiami Airport ASOS recorded wind 110 degrees 33 gusting to 57 knots at 24 sep 98 0618 pm est. Miami International Airport ASOS recorded wind 100 degrees 33 gusting to 44 knots at 25 sep 98 0543 am est. 100,000 residents were evacuated and 13000 were in shelters. Widespread damage to trees and vegetation and power outages.									
Monroe County									
3 E Ocean Reef to Ocean Reef	24	2000EST			0	0			Waterspout
FLZ074-078									
Coastal Dade - Monroe/Lower Keys									
25	0000EST 1700EST				0	0	255M	15M	Hurricane
100,000 people evacuated.									
Monroe County									
Countywide	25	0000EST 2359EST			0	0			Heavy Rain
Key West Airport 8.38 inches...Sugarloaf Key (south side) 8.65 inches...Tavernier 8.38 inches...Dry Tortugas estimated 8.00 inches.									
Monroe County									
Countywide	25	1200EST 1600EST			0	0			Storm Surge
The greatest effects of the storm surge occurred in the early afternoon during and after the eye of Hurricane Georges passed over r Key West. Storm surge heights were as follows: Key West to Boca Chica Key 3 to 4 feet, Near Big Coppets Key 4 to 6 feet. Near Sugarloaf Key 3 to 4 feet. Between Cudjoe Key to Big Pine Key 5 to 6 feet. From Bahia Honda Key to Grassy Key 4 to 5 feet. The remainder of the Florida keys experience 2 to 3 feet. The storm surge affected primariially the southside of the islands. Roadway s were completely underwaters. Docks, piers and seawalls destroyed. Most of the damage which resulted from Hurricane Georges was caused by the storm surge.									
Spiral bands associated with Hurricane Georges moved north over south Florida on the evening of Thursday September 24 1998. The convective activity embedded in the spiral bands was moving to the southwest near 45 knots. Hurricane Georges moved off the coast of central Cuba on the morning of Friday September 25 1998. Georges moved northwest over the Straits of Florida. The eye passed over Key West at mile marker 1 of US-1 between 1100 AM EST and 1230 PM EST. The greastest damage from wind and storm surge flooding occurred in the lower Keys from Cudjoe Key, mile marker 21, to Big Pine Key, mile marker 31. NWS personnel estimated 105-110 knot wind gusts from the south and southeast in this area with sustained winds near 90 knots. As the north side of the eye wall passed over Key West, the highest sustained winds were 58 knots with gusts to 76 knots from the east and northeast. The Key West ASOS lost power at that time. Georges continued to move northwest over the Gulf of Mexico. The									

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>FLORIDA, Southern</b>									
southwest coast of Florida experienced widespread beach erosion from the storm surge.									
<b>FLZ069</b>									
	<b>25</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>			<b>Hurricane</b>
		<b>1800EST</b>							
	Naples recorded wind 110 degrees 31 gusting to 48 knots at 155 pm est. Wind gust to 95 knots recorded at Marco Island. (time unknown).								
<b>FLZ063-066&gt;068-070&gt;073</b>									
			<b>Glades - Hendry - Inland Palm Beach - Coastal Palm Beach - Inland Collier - Inland Broward - Coastal Broward - Inland Dade</b>						
	<b>25</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>			<b>Tropical Storm</b>
		<b>1300EST</b>							
<b>FLZ075</b>									
			<b>Mainland Monroe</b>						
	<b>25</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>			<b>Hurricane</b>
		<b>1600EST</b>							
<b>Broward County</b>									
<b>Hallandale</b>	<b>25</b>	<b>1240EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
		<b>1250EST</b>							
	Waterspout observed by mariners. Waterspout may have moved onshore as tornado. Without further eyewitnesses...damage was indistinguishable from that of widespread tropical storm damage.								
<b>Broward County</b>									
<b>Hallandale</b>	<b>25</b>	<b>1242EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
	Waterspout reported by mariner just off the coast.								

## FLORIDA, West Central

**FLZ039-042>043-048>052-055>057-060>062-065** **Levy - Citrus - Sumter - Hernando - Pasco - Pinellas - Hillsborough - Polk - Manatee - Hardee - Highlands - Sarasota - De Soto - Charlotte - Lee**

**02 1200EST 0 2 1.1M 0 Hurricane**  
**03 1200EST**

Hurricane Earl moved northeast across the Gulf of Mexico and brought low end tropical storm force wind gusts from Cedar Key in Levy county south to Sarasota in Sarasota county. Damage from "Earl" was considered minor. However, cumulative damage estimates, primarily tornadic, from fifteen counties of West Central and Southwest Florida, yielded a value of 1.13 million dollars.

Storm total rainfall amounts were generally under one half inch with a few isolated amounts around three inches. Beach erosion was generally minor. However, moderate to severe beach erosion was observed near Venice in Sarasota county. Street flooding one to two feet deep was reported along the immediate coastal roads of Sarasota, Manatee and Pinellas counties.

Wind damage was minor. However, Hurricane Earl did spawn six tornadoes, one of which produced F2 damage and two minor injuries.

Although the eye of Hurricane Earl moved onshore near Panama City in the panhandle of Northwest Florida, storm tide was experienced along the entire west coast of Florida.

COUNTY	STORM TIDE VALUE (MSL)	TIME (EST)	DATE
Levy	5 to 7 feet	0000-0600	09/03
Citrus	4 to 5 feet	0200-0800	09/03
Hernando	3 to 4.5 feet	0500-1000	09/03
Pasco	3 to 4.5 feet	0600-1000	09/03
Pinellas	3 to 4.5 feet	0700-1100	09/03
Hillsborough	3 to 4.5 feet	0700-1000	09/03
Manatee	3 to 4.5 feet	0700-1000	09/03
Sarasota	2 to 3 feet	0800-1100	09/03
Charlotte	2 to 3 feet	0800-1200	09/03
Lee	2 to 3 feet	0800-1200	09/03
Max Wind Gust:	48 mph - Skywarn Bridge, Pinellas Co.	1230EST	09/03
Lowest Pressure:	1001.9 mb - Cedar Key, Levy Co.	0200EST	09/03
Max Rainfall:	3.07 in - New Port Richey, Pasco Co.	0100-2100	09/02-03

**Hardee County**  
**Ona**

**02 1300EST 0 0 1K 0 Thunderstorm Wind**  
 The Peace River Electric Coop reported thunderstorm winds downed a couple of large trees and power lines near Ona.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>FLORIDA, West Central</b>									
<b>Pasco County</b>									
4 W Land O Lakes	02	1423EST	0.1	5	0	0	0	0	<b>Tornado (F0)</b>
A short lived tornado, associated with an outer band of Hurricane Earl, touched down over rural semi wooded countryside, four miles west of Land O' Lakes and one mile north of State Road 54, with no apparent damage.									
<b>Hernando County</b>									
3 S Brooksville	02	1506EST	2.7	50	0	0	25K	0	<b>Tornado (F1)</b>
A tornado, associated with an outer band of Hurricane Earl, touched down and caused minor to moderate roof and shingle damage to three single family homes, two additional homes under construction, and snapped several large branches near the intersection of County Roads 572 and 581 south of Brooksville. The tornado continued to down a few large trees and power lines across semi-wooded rural eastern Hernando county before it lifted and dissipated.									
<b>Citrus County</b>									
Ozello	02	1530EST	0.1	5	0	0	0	0	<b>Tornado (F0)</b>
A short lived tornado, associated with the outer bands of Hurricane Earl, touched down over the rural bayou region near Ozello in extreme western Citrus County with no apparent damage.									
<b>Hernando County</b>									
1 SW Nobleton to Nobleton	02	1540EST 1541EST	1	5	0	0	5K	0	<b>Tornado (F0)</b>
<b>Sumter County</b>									
9 WSW Bushnell to 4 NE Wildwood	02	1541EST 1605EST	20	5	0	0	5K	0	<b>Tornado (F0)</b>
A tornado, associated with an outer band of Hurricane Earl, sporadically touched down and toppled a few trees and limbs in Nobleton before crossing the county line into Sumter county. The tornado continued northeast and sporadically touched down across rural semi-wooded swampland of Sumter county where it caused minor branch and tree top damage before it lifted and dissipated at Lake Miona near County Road 472.									
<b>Citrus County</b>									
6 NE Crystal River to 10.5 NE Crystal River	03	0505EST 0511EST	4.5	50	0	2	500K	0	<b>Tornado (F2)</b>
A tornado (F2), associated with an outer band of Hurricane Earl, touched down along N. Fairport Avenue, east of the intersection of County Road 495 and West Dunklin Road, six miles northeast of Crystal River. The tornado moved northeast, sporadically touched down along a narrow path, and destroyed a two story family structure, seven mobile homes and caused minor damage to an additional eight single family and sixteen mobile homes. Several large trees, sheds and power lines were downed by the tornado before it lifted and dissipated near County Road 488 and N. Circle M Avenue.									
Of note, a homeowner on W. Wheatfield Lane in Citrus Springs was alerted to the impending tornado by his four dogs who stubbornly refused to venture outdoors nearly ten minutes prior to the touchdown. The homeowner on W. Wheatfield Lane described the sound of the tornado similar to that of a roaring train as it passed over and damaged his home and downed nearby trees.									
Two injuries occurred to the occupants of the two story home that was destroyed by the tornado before it lifted and dissipated.									
<b>Highlands County</b>									
Sebring	03	1400EST			0	1	0	0	<b>Lightning</b>
Lightning struck and injured a female in the process of closing an umbrella before entering a vehicle during a thunderstorm with heavy rain on Crescent Drive in Sebring. The lightning struck and ignited the umbrella while the electrical shock travelled down the left side of the females body.									
<b>Hillsborough County</b>									
4 SE Brandon	05	1500EST			0	0	2K	0	<b>Thunderstorm Wind</b>
A local cable television all news station reported thunderstorm winds downed a large oak tree and several power lines on Little Road between Bloomingdale Avenue and Durant Road.									
<b>Hillsborough County</b>									
Ruskin	06	1830EST			0	0	2K	0	<b>Thunderstorm Wind</b>
The public reported thunderstorm winds downed two large oak trees, a fence and a home television antenna on the 2300 block of 24th Street in Ruskin.									
<b>Hillsborough County</b>									
Tampa	06	1910EST			0	0	0	0	<b>Hail (1.00)</b>
Emergency service personnel reported quarter sized hail at the intersection of Erlich Road and Gunn Highway in the Carrollwood area of northwest Tampa.									
<b>Hillsborough County</b>									
Tampa	06	1930EST			0	0	5K	0	<b>Thunderstorm Wind</b>
The Hillsborough County Fire Department reported thunderstorm winds removed shingles and roofing paper from an apartment building at the Quail Run apartment complex on the 15400 block of East Pond Woods Road.									

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>FLORIDA, West Central</b>									
<b>Hernando County</b> 2 NE Brooksville	09	1455EST			0	0	284K	0	Lightning
	Lightning struck and burned a 5,500 square foot home off Croom Road northeast of Brooksville.								
<b>Charlotte County</b> Port Charlotte	19	1100EST			0	0	5K	0	Tstm Wind (G45)
	A thunderstorm wind gust of up to 50 mph damaged the aluminum roof of a mobile home on the 2100 block of Kings Highway in Port Charlotte.								
<b>FLZ051</b> <b>Hillsborough</b>	19	1300EST			0	0	100K	0	Flood
		1600EST							
	Heavy rain of eight to ten inches in less than three hours caused flooding of vehicles, homes and apartments from near the intersection of State Road 582 (Fowler Avenue) and State Road 583 (56th Street) to near the intersection of Interstate 75 and County Road 582A (Fletcher Avenue) in Temple Terrace.								
<b>Hillsborough County</b> 18 ESE Tampa	20	0800EST			0	0	50K	0	River Flood
	30	0800EST							
	The Alafia River along State Road 640 in Lithia crested at 16.0 feet, three feet above the flood stage of 13 feet, on the 21st. A few homes along the Alafia River incurred water damage.								
<b>Hillsborough County</b> 21 SSE Tampa	20	0800EST			0	0	75K	0	River Flood
	29	0800EST							
	The Little Manatee River crested at 15.4 feet, over four feet above the flood stage of eleven feet, on the 21st. Several homes incurred water damage near 32nd and 33rd streets in Ruskin from floodwaters of the Little Manatee River.								
<b>Manatee County</b> 27 E Bradenton	20	0800EST			0	0	0	0	River Flood
	22	0800EST							
	The Manatee River at Myakka Head along State Road 64 crested at 15.6 feet, over four and a half feet above the flood stage of eleven feet, on the 20th.								
<b>Pasco County</b> 18 W Zephyrhills	21	0800EST			0	0	5K	0	River Flood
	30	2359EST							
	The Cypress Creek at Worthington Gardens along State Road 54 crested at 9.5 feet, a foot and a half above the flood stage of eight feet, on the 24th. A few homes incurred damage from the floodwaters of the Cypress Creek.								
<b>Sarasota County</b> 27 E Sarasota	22	0800EST			0	0	1K	0	River Flood
	30	2359EST							
	The Myakka River at Myakka State Park crested at 8.6 feet, over a foot and a half above the flood stage of seven feet, on the 29th. A few trail bridges in the Myakka State Park were damaged by floodwaters.								
<b>Pasco County</b> Land O Lakes	22	1200EST			0	0	100K	0	Flood
	23	1200EST							
	A protective berm surrounding a rain saturated pond failed and flooded 20 homes in the Sable Ridge subdivision in Land O' Lakes.								
<b>Manatee County</b> 2 NW Anna Maria	24	1139EST			0	0	0	0	Waterspout
		1141EST							
	A waterspout was reported two miles northwest of Anna Maria.								
<b>FLZ039-042&gt;043-048&gt;052-055&gt;057-060&gt;062-065</b>	<b>Levy - Citrus - Sumter - Hernando - Pasco - Pinellas - Hillsborough - Polk - Manatee - Hardee - Highlands - Sarasota - De Soto - Charlotte - Lee</b>								
	25	0000EST			0	0	250K		Hurricane
	27	0700EST							
	Hurricane Georges, a Cape Verde hurricane, moved through the Florida Straights then continued northwest across the central and northern Gulf of Mexico and brought low end tropical storm force wind gusts from Pasco county south to Lee county along the West Central Florida coastline. Damage from "Georges" was consider minor. However, cumulative damage estimates from fifteen counties of West Central and Southwest Florida yielded a value around a quarter million dollars.								
	Storm total rainfall amounts were generally under one inch with a few isolated amounts around three inches in De Soto county. Beach erosion was minor. Wind damage was minor. However, Georges did spawn six F0 tornadoes across West Central Florida.								
	Although the eye of Hurricane Georges moved onshore near Mobile, Alabama, storm tide was experienced along the entire west coast of Florida.								



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## FLORIDA, West Central

COUNTY =====	STORM TIDE VALUE (MSL) =====	TIME (EST) =====	DATE =====
Levy	2 to 4 feet	0200-1000	09/27
Citrus	1 to 3 feet	0200-1000	09/27
Hernando	2 to 3 feet	1900-0300	09/26-27
Pasco	1 foot	1700-1900	09/26
Pinellas	2 to 3 feet	1500-2100	09/26
Hillsborough	2 to 3 feet	1600-2200	09/26
Manatee	3 feet	1500-2100	09/26
Sarasota	3 to 4 feet	0200-0500	09/27
Charlotte	4 to 5 feet	1100-0700	09/26-27
Lee	2 to 3 feet	1100-0700	09/26-27
Max wind gust:	48 mph - Punta Gorda, Charlotte Co.	1316EST	09/25
Lowest pressure:	1007.7 mb - Ft Myers, Lee Co.	1153EST	09/25
Max rainfall:	3.02 in - Arcadia, De Soto Co.	0100-0100	09/25-27

### Polk County 1 E Bartow

25	0800EST	0	0	0	0	River Flood
30	2359EST					

The Peace River along State Road 60 in Bartow crested at 8.6 feet, over a half foot above the flood stage of eight feet, on the 29th.

### Manatee County 27 E Bradenton

25	0800EST	0	0	0	0	River Flood
27	0800EST					

The Manatee River at Myakka Head along State Road 64 crested at 14.6 feet, over three and a half feet above the flood stage of eleven feet, on the 26th.

### Polk County 2 S Winter Haven to 3 SW Winter Haven

25	1000EST	0.5	5	0	0	5K	0	Tornado (F0)
	1005EST							

The Polk County Emergency Management reported a short lived tornado, associated with an outer band of Hurricane Georges, touched down over rural semi-wooded countryside and removed a few awnings, blew over a couple of sheds and downed power lines and large tree limbs at Cooley and Lakeship Drive before it lifted and dissipated.

### Polk County 7 NW Lakeland to 8 NW Lakeland

25	1030EST	0.5	10	0	0	40K	0	Tornado (F0)
	1035EST							

The Polk County Emergency Management reported a tornado, associated with an outer band of Hurricane Georges, touched down and toppled trees and power lines on Payne Road. The tornado continued northwest and damaged two barns and blew a trailer off its foundation at Deeson and Greenfield Roads before it lifted and dissipated.

### Hillsborough County 13 NW Tampa

25	1105EST	0.1	5	0	0	0	0	Tornado (F0)
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The Hillsborough County Emergency Management reported a tornado, associated with an outer band of Hurricane Georges, briefly touched down near the intersection of Lake Shore and Van Dyke Roads near Lutz.

### Pasco County Hudson

25	1132EST	0.1	5	0	0	1K	0	Tornado (F0)
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A Pasco County Sheriffs Deputy observed a tornado, associated with an outer band of Hurricane Georges, briefly touch down and topple a few large trees near U.S. Highway 19 in Hudson.

### Charlotte County 3 W Englewood

25	1320EST			0	0	0	0	Waterspout
----	---------	--	--	---	---	---	---	------------

A waterspout, associated with an outer band of Hurricane Georges, was reported by the Charlotte County Emergency Management.

### Charlotte County 3 E Punta Gorda to 6 N Punta Gorda

25	1325EST	5	5	0	0	1K	0	Tornado (F0)
	1335EST							

A tornado, associated with an outer band of Hurricane Georges, sporadically touched down and toppled a few large trees along its path before it lifted and dissipated in northern Charlotte county.

### Charlotte County 16 S Punta Gorda

25	1330EST			0	0	25K	0	Thunderstorm Wind
----	---------	--	--	---	---	-----	---	-------------------

A 250 foot communications antenna was toppled by thunderstorm winds near County Road 765 near the community of Burnt Store.

### Sarasota County 2 NE Sarasota

25	1345EST			0	0	5K	0	Tstm Wind (G40)
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Thunderstorm winds, associated with an outer band of Hurricane Georges, tore off part of the aluminum roof of a mobile home on

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Number of Persons Injured	Estimated Damage Property	Crops	Character of Storm
<b><u>FLORIDA, West Central</u></b>									
Circle Drive East in the Bahia Vista Estates in Sarasota.									
<b>De Soto County</b> 2.5 SSE Arcadia to 4 NW Arcadia	25	1350EST 1357EST	6	10	0	0	5K	0	<b>Tornado (F0)</b>
The De Soto County Emergency Management reported that a weak tornado, associated with an outer band of Hurricane Georges, sporadically touched down along a narrow path and toppled a few trees and branches before it lifted and dissipated.									
<b>Manatee County</b> 6.5 WSW Bradenton	25	1400EST			0	0	10K	0	<b>Tstm Wind (G40)</b>
Thunderstorm winds, associated with an outer band of Hurricane Georges, toppled the large metal canopy of a gasoline service station along the 10200 block of State Road 684 (Cortez Road) in Bradenton.									
<b>De Soto County</b> 1 W Arcadia	26 30	0800EST 2359EST			0	0	10K	0	<b>River Flood</b>
The Peace River along State Road 70 in Arcadia reached a height of 12.7 feet, more than a foot and a half above the flood stage of eleven feet, on the 30th. A few homes were damaged by floodwaters of the Peace River.									
<b>De Soto County</b> 8 W Arcadia	26 30	0800EST 2359EST			0	0	0	0	<b>River Flood</b>
The Horse Creek reached a maximum height of 13.5 feet during September, a foot and a half above the flood stage of twelve feet, on the 30th.									
<b>Hardee County</b> 1 N Zolfo Spgs	27 30	0800EST 0800EST			0	0	0	0	<b>River Flood</b>
The Peace River, along U.S. Highway 17 in Zolfo Springs, crested at 16.9 feet, nearly a foot above the flood stage of sixteen feet, on the 30th.									
<b>Hillsborough County</b> Tampa	30	1425EST			0	0	15K	0	<b>Thunderstorm Wind</b>
The Tampa Electric Company reported thunderstorm winds downed several large tree limbs and power lines in Tampa.									
<b>Hillsborough County</b> Temple Terrace	30	1430EST			0	0	20K	0	<b>Thunderstorm Wind</b>
The public reported thunderstorm winds, estimated between 60 to 70 mph, destroyed a reinforced lanai of a home in Temple Terrace. Several large tree limbs were also downed by the thunderstorm winds.									
<b>Hillsborough County</b> Brandon	30	1430EST			0	0	0	0	<b>Hail (0.88)</b>
Nickel sized hail was reported by the public in Brandon.									
<b>Manatee County</b> 1 W Anna Maria	30	1433EST			0	0	0	0	<b>Waterspout</b>
A waterspout was observed offshore of Coquina and Manatee Beaches.									

## FLORIDA, West Panhandle

<b>FLZ001&gt;006</b>	<b>Inland Escambia - Coastal Escambia - Inland Santa Rosa - Coastal Santa Rosa - Inland Okaloosa - Coastal Okaloosa</b>								
	01 03	1500CST 2359CST			0	0	150K		<b>Hurricane</b>
Hurricane Earl affected the Southwest Alabama and Northwest Florida areas on September 1 through September 3. A hurricane watch was issued for the area from east of Pascagoula to Destin Florida at 300 PM CST on September 1. A tropical storm warning was issued for the area from east of Pascagoula to Destin at 900 PM CST on September 1. A hurricane warning was issued for Southwest Alabama and Northwest Florida at 300 AM CST on September 2. All warnings were dropped from the Alabama-Florida state line westward at 900 PM CST on September 2. Warnings were dropped for the area west of Panama City at 300 AM CST on September 3. Earl moved across the Gulf of Mexico and moved south of the area. Hurricane Earl moved ashore near Panama City, Florida around 1159 PM CST on September 2. Earl caused only minor damage across the area from Dauphin Island to Destin. The following winds were observed across the area during Earl: Mobile Regional Airport, sustained wind of 23 knots with a gust of 28 knots. Pensacola Regional Airport, sustained wind of 32 knots with a gust of 49 knots. Crestview airport, sustained wind 35 knots with a gust of 47 knots. Hurlburt Air Force Base in Mary Esther, sustained wind 31 knots with a gust of 44 knots. Sea buoy 70 south of Dauphin Island, sustained wind 41 knots with a gust of 55 knots. Sea buoy 100 SSE of Destin, sustained wind 45 knots with a gust of 59 knots. The lowest sea level pressure was 994.2 millibars at Destin. The sea buoy 100 SSE of Destin had 989.4 millibars. Highest three day rainfall totals ending at midnight on September 4, 1998: Mobile Regional Airport, 2.45 inches. Pensacola Regional Airport, 3.06 inches. Crestview airport, 6.03 inches. Eglin Air Force Base in Valparaiso, Florida, 6.31 inches. Hurlburt Air Force Base in Mary Esther, 5.45 inches. Some minor flooding was reported in the south parts of Mobile county and the south									

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>FLORIDA, West Panhandle</u></b>									
	parts of Okaloosa county.								
	Estimated storm surge heights along the coast: Mobile and Baldwin counties in Southwest Alabama, 1 to 2 feet. Escambia county Florida, 2 to 3 feet. Santa Rosa county, around 3 feet. Okaloosa county, around 4 feet. Some minor beach erosion occurred in Escambia, Santa Rosa and Okaloosa counties in Northwest Florida. Norriego Point at Destin Harbour had a 400 feet breach caused by high waves. Several sea turtle nests were destroyed by the high waves from Pensacola Beach to Destin.								
<b>FLZ001&gt;006</b>	<b>Inland Escambia - Coastal Escambia - Inland Santa Rosa - Coastal Santa Rosa - Inland Okaloosa - Coastal Okaloosa</b>								
	<b>25</b>	<b>0900CST</b>			<b>0</b>	<b>0</b>	<b>135M</b>		<b>Hurricane</b>
	<b>29</b>	<b>0900CST</b>							
	See the narrative on Hurricane Georges under Alabama, Southwest, September 25-29, 1998. Preliminary estimates of agricultural damage in Northwest Florida were twenty to twenty-five million in losses to cotton, soybeans, peanuts and chickens due to the storm.								
<b>Escambia County Countywide</b>	<b>27</b>	<b>0900CST</b>			<b>0</b>	<b>0</b>			<b>Flood</b>
	<b>29</b>	<b>1800CST</b>							
	Heavy rains from Hurricane Georges caused widespread flooding across the county. The heavy rains began along the border with Alabama and spread east across the county. Rainfall estimates were between twenty and thirty inches across the county. Schools were closed for three days because of the flood damage done to secondary roads. Many dirt roads in the rural parts of the count y were completely washed away. Many bridges in the county were undermined by the high water and had to be closed. I-10 was closed for awhile because of high water near the Alabama and Florida line. The NOAA Weather Radio was knocked off the air for more than a day as the building housing the radio equipment had two feet of water in it and shorted out the transmitter. The heav y rains also caused extensive river flooding in the county. The Perdido River crested at 26.3 feet, which was above the record of 23.94 feet. The Escambia River also recorded near record levels. The river crested at 23.9 feet on September 30. This was almost as hig h as the record flood of 24.2 feet in March of this year.								
<b>Santa Rosa County Countywide</b>	<b>27</b>	<b>0900CST</b>			<b>0</b>	<b>0</b>	<b>0</b>		<b>Flood</b>
	<b>29</b>	<b>1800CST</b>							
	Heavy rains from slow moving Hurricane Georges caused widespread flooding across the county. Rainfall estimates were between fifteen and twenty-five inches across the county. Most of the roads in the county had some form of flood damage. Many roads were closed for several days because of the heavy rains. Schools were closed for two to three days because of the many washed out secondary roads. Because of heavy rains, river flooding was reported throughout the county. The Big Coldwater Creek at Milton reached a reading of 19.86 feet on September 29. The Blackwater River at Baker reached a reading of 25.57 feet on September 29, which was near the record of 25.61 feet in June of 1970. Areas and communities hardest hit by river flooding were Milton an d vicinity, Paradise Island, Harold, and Ward Basin.								
<b>Okaloosa County Ft Walton Beach</b>	<b>27</b>	<b>1145CST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind (G50)</b>
		<b>1147CST</b>							
	Trees and power lines were blown down near Fort Walton Beach.								
<b>Santa Rosa County Milton</b>	<b>27</b>	<b>1930CST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind (G50)</b>
		<b>1931CST</b>							
	High winds damaged a building on the Naval Air Station at Whiting Field in Milton.								
<b>Okaloosa County Shalimar</b>	<b>27</b>	<b>2110CST</b>	<b>1</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>300K</b>		<b>Tornado (F1)</b>
		<b>2111CST</b>							
	A tornado first touched down along the bay in Shalimar. The tornado damaged several homes as it moved northwest. Some of the homes had major roof damage. The tornado stayed on the ground for about a mile and lifted back into the cloud near State Highway 85. No one was injured.								
<b>Okaloosa County Countywide</b>	<b>28</b>	<b>0300CST</b>			<b>0</b>	<b>0</b>			<b>Flood</b>
	<b>29</b>	<b>1800CST</b>							
	Torrential rainfall from slow moving Hurricane Georges caused widespread flooding throughout the county. Rainfall estimates were between fifteen and twenty-five inches throughout the county. Many roads throughout the county were closed due to flooding. I-1 0 was closed both east and west of Crestview for several hours because of water across the highway. Schools were closed for two to three days because of washed out secondary roads. Many secondary roads had to be closed for days because of lack of people to repair them. The heavy rainfall and resulting runoff caused record river flooding throughout the county. The Yellow River at Milligan crested at 24.09 feet on October 1. This was about four feet above the record of 20.32 feet in March of this year. The Shoal River at Crestview crested at 21.4 feet on September 30. This was about six feet above the record of 15.58 feet in August of 1975. Many homes along these two rivers were either destroyed or suffered major damage. Areas and communities hardest hit by river flooding were the Yellow River Valle v, south and east of Crestview, Milligan and vicinity, Wilkerson Bluff, and Dorcas.								

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## FLORIDA, West Panhandle

### **Okaloosa County**

**Crestview**      **28**      **0415CST**  
**0416CST**      **0**      **0**      **5K**      **Thunderstorm Wind (G50)**

Trees and power lines were blown down near Crestview.

### **Okaloosa County**

**Ft Walton Beach to**  
**(Vps)Eglin Afb**      **28**      **2110CST**  
**2115CST**      **4**      **50**      **0**      **0**      **10K**      **Tornado (F0)**

A tornado, that spent most of its time just off the ground, skipped across the south part of Okaloosa county and caused minor roof and tree damage. The tornado began near Okaloosa Island and moved across the Sound then across Fort Walton Beach to the golf course, then went back into the cloud as it entered the Eglin Air Force Base reservation. No one was injured. Several people observed the funnel.

### **Santa Rosa County**

**1 N Harold**      **29**      **0215CST**  
**0217CST**      **0**      **0**      **3K**      **Thunderstorm Wind (G50)**

Trees and power lines were blown down just north of Harold, near the Blackwater River State Park.

## GEORGIA, East Central

### **Columbia County**

**Evans to**  
**Appling**      **03**      **1500EST**  
**1900EST**      **0**      **0**      **0**      **Flash Flood**

EPD reported flash flooding along several streams. Some residents were evacuated and several streets were closed.

### **Richmond County**

**Augusta**      **03**      **1500EST**  
**1900EST**      **0**      **0**      **0**      **Flash Flood**

EPD reported flash flooding along several streams. About 50 people were evacuated from two subdivisions and several streets were closed.

### **McDuffie County**

**Thomson**      **08**      **1720EST**      **0**      **0**      **0**      **Thunderstorm Wind (G55)**

EPD reported trees down in Thomson.

### **McDuffie County**

**Dearing**      **08**      **1729EST**      **0**      **0**      **0**      **Thunderstorm Wind (G55)**

EPD reported trees down in Dearing.

### **Richmond County**

**Hephzibah**      **08**      **1745EST**      **0**      **0**      **0**      **Thunderstorm Wind (G50)**

Utility company reported large branches, powerlines, and one tree down.

## GEORGIA, Lower

### **Echols County**

**Statenville**      **03**      **0130EST**      **0**      **0**      **15K**      **Thunderstorm Wind**

A roof was blown off a home. Large trees and power lines were blown down.

### **Clinch County**

**Homerville**      **03**      **0200EST**      **0**      **0**      **2.5K**      **Thunderstorm Wind**

Large trees and power lines were blown down.

### **Ware County**

**Waycross**      **03**      **0430EST**  
**0630EST**      **0**      **0**      **10K**      **Flood**

Underpasses with parts of some roads closed. Numerous stalled vehicles in standing water.

### **GAZ135-153>154**

#### **Appling - Inland Glynn - Coastal Glynn**

**03**      **0630EST**  
**1220EST**      **0**      **0**      **10K**      **High Wind**

Winds associated with Hurricane Earl. Large trees and power lines were blown down.

### **Camden County**

**Kingsland**      **03**      **1200EST**      **0**      **0**      **3K**      **Thunderstorm Wind**

Large trees and power lines were blown down.

### **Glynn County**

**Brunswick**      **03**      **1230EST**      **0**      **0**      **2.5K**      **Thunderstorm Wind**

Large trees and power lines were blown down.

### **Camden County**

**Countywide**      **18**      **1910EST**  
**2210EST**      **0**      **0**      **15K**      **Flood**

Numerous streets were closed in St. Marys and Kingsland. The water was deep enough in to allow cars to float. Three homes had

# Storm Data and Unusual Weather Phenomena

September 1998

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>GEORGIA, Lower</b>									
water damage. One family was relocated by the Red Cross.									
<b>Appling County</b>									
<b>Baxley</b>	<b>29</b>	<b>2020EST</b>			<b>0</b>	<b>1</b>	<b>65K</b>		<b>Thunderstorm Wind</b>
Mobile homes were blown off their foundations and siding was ripped from the sides of industrial buildings. Twelve mobile homes were damaged, and one with major damage, because a tree fell on it. One vehicle was damaged. Large trees and power lines were blown down. The damaged was associated with the remnants of Hurricane Georges.									
<b>Appling County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Atkinson County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Bacon County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Charlton County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Coffee County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Jeff Davis County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and road.									
<b>Pierce County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>Ware County</b>									
<b>Countywide</b>	<b>29</b>	<b>2300EST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>Flood</b>
	<b>30</b>	<b>0600EST</b>							
Rainfall amounts of 5 to 7 inches from the remnants of Hurricane Georges caused the closing of numerous street and roads.									
<b>GEORGIA, North and Central</b>									
<b>Emanuel County</b>									
<b>Swainsboro</b>	<b>01</b>	<b>1630EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
		<b>1645EST</b>							
Emanuel county 911 reported 4 trees downed by thunderstorm winds. One fell on a house.									
<b>Fulton County</b>									
<b>East Pt</b>	<b>01</b>	<b>1700EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Flash Flood</b>
		<b>1800EST</b>							
East Point police reported several streets were flooded and vehicles stranded during torrential rains.									
<b>Fulton County</b>									
<b>Alpharetta</b>	<b>02</b>	<b>1600EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
A TV meteorologist reported numerous trees knocked down from an apparent downburst.									
<b>Paulding County</b>									
<b>Hiram to</b>	<b>02</b>	<b>1735EST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
<b>1 NE Hiram</b>		<b>1747EST</b>							
The public reported dime to quarter size hail.									
<b>GAZ082&gt;084-</b>	<b>Bibb - Twiggs - Wilkinson - Peach - Houston - Bleckley - Laurens - Sumter - Dooly - Crisp - Pulaski - Wilcox</b>								
<b>094&gt;097-104&gt;109</b>	<b>- Dodge</b>								
	<b>03</b>	<b>0600EST</b>			<b>0</b>	<b>0</b>	<b>100K</b>		<b>High Wind</b>
		<b>1400EST</b>							
Hurricane Earl moved across the Florida panhandle and weakened to a tropical storm as it moved through southwest Georgia. It continued to weaken as it moved near a track from 30 miles south of Albany to near Dublin to just south of Augusta. Winds gusted									

# Storm Data and Unusual Weather Phenomena

		Time	Path	Path	Number of		Estimated	September 1998	
Location	Date	Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Damage Crops	Character of Storm
<b><u>GEORGIA, North and Central</u></b>									
to around 50 mph with the strongest reported gust of 54 mph in Macon. The winds knocked down numerous trees causing isolated property damage. Downed power lines caused temporary power outages in much of the area. Around 5 to 10 inches of rain fell in a 24 hour period causing temporary street flooding and several traffic accidents. However, no serious flooding was reported.									
<b>Laurens County</b> <b>Dublin</b>	<b>03</b>	<b>0625EST</b> <b>0635EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
Severe thunderstorm winds knocked down trees and power lines in the south and east part of the county.									
<b>Sumter County</b> <b>Countywide</b>	<b>29</b>	<b>1530EST</b> <b>1715EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Clouds</b>
Hurricane Georges moved slowly onshore near Biloxi, Mississippi the morning of the 28th. Although it had weakened to a tropical depression by the 29th, it still posed a threat to west central and southwest Georgia as spiral bands of convection triggered funnel clouds and heavy rain. Newspaper and numerous public reports relayed through the sheriff's office, as well as sight survey by an NWS employee indicated funnels were observed over the east part of Sumter county from southeast of DeSoto to Andersonville, and others were in central and west parts of the county near Americus and Plains. Little or no lightning and thunder were observed with the weather system.									
<b>Sumter County</b> <b>Desoto</b>	<b>29</b>	<b>1530EST</b>	<b>0.2</b>	<b>50</b>	<b>0</b>	<b>12</b>	<b>200K</b>		<b>Tornado (F1)</b>
Low topped convection caused an apparent tornado in the Railroad Street area of DeSoto. Newspaper reports and sight survey by a n NWS employee indicated at least 1 permanent structure home and 7 mobile homes were destroyed. Other homes were damaged by some of the hundreds of trees that fell. Several businesses were also damaged.									
<b>Macon County</b> <b>3 W Ideal</b>	<b>29</b>	<b>1625EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
Reports from the Macon county sheriff's office and newspaper accounts indicated trees were downed in the west part of Macon county. A car was reported damaged by a falling tree.									
<b>Crisp County</b> <b>3 E Cordele</b>	<b>29</b>	<b>1630EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
The public reported a funnel cloud.									
<b>Schley County</b> <b>6 N Ellaville</b>	<b>29</b>	<b>1630EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
A newspaper reported trees were toppled and a porch was torn off a mobile home in the northern part of Schley county.									
<b>Sumter County</b> <b>3 SE Desoto</b>	<b>29</b>	<b>1635EST</b>	<b>0.2</b>	<b>50</b>	<b>0</b>	<b>10</b>	<b>200K</b>		<b>Tornado (F1)</b>
Sight survey by an NWS employee and a newspaper report indicated a permanent structure home and several mobile or modular homes were destroyed in the Ferguson Road area. Debris was scattered several hundred feet.									
<b>Sumter County</b> <b>Andersonville</b>	<b>29</b>	<b>1710EST</b>	<b>0.2</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>20K</b>		<b>Tornado (F0)</b>
A newspaper report indicated another brief touchdown by an apparent tornado took out a pecan grove on Georgia highway 49 near Andersonville. This would probably have been from the same storm that had hit near DeSoto about 35 minutes earlier.									
<b><u>GEORGIA, Northeast</u></b>									
<b>Franklin County</b> <b>Royston to</b> <b>Franklin Spgs</b>	<b>29</b>	<b>1600EST</b> <b>1800EST</b>			<b>0</b>	<b>0</b>			<b>Urban/Sml Stream Fld</b>
Stopped up drains caused some yards to flood after about 4 inches of rain fell in a short time.									
<b><u>GEORGIA, Southeast</u></b>									
<b>Liberty County</b> <b>1 NE Hinesville to</b> <b>4 NE Hinesville</b>	<b>03</b>	<b>0455EST</b> <b>0515EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
Trees and power lines down.									
<b>Bryan County</b> <b>Countywide</b>	<b>03</b>	<b>0512EST</b> <b>0535EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G55)</b>
Numerous trees and power lines down.									
<b>Chatham County</b> <b>Countywide</b>	<b>03</b>	<b>0515EST</b> <b>0545EST</b>			<b>0</b>	<b>0</b>	<b>1.3M</b>		<b>Thunderstorm Wind (G55)</b>
Numerous trees and powerlines down. The Mar Lin Marina suffered extensive damage and encountered 6 to 8 foot swells with the onshore component of the winds. Boats were capsized, and the docks were destroyed. At least 30 boats were damaged to varying									



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## GEORGIA, Southeast

degrees- six were completely destroyed, four capsized and five ended up in the marshes.

### Bulloch County Statesboro

<b>03</b>	<b>1015EST</b>				<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
	<b>1022EST</b>								

Trees and power lines down.

### Screven County 1 W Sylvania to 5 NNE Sylvania

<b>03</b>	<b>1023EST</b>	<b>8</b>	<b>350</b>	<b>0</b>	<b>7</b>	<b>435K</b>			<b>Tornado (F2)</b>
	<b>1038EST</b>								

Numerous trees snapped off or uprooted. The most extensive damage was approximately 3 miles north of Sylvania. In this area, there were 5 mobile homes destroyed, 1 business destroyed, 15 mobile homes with major damage and 5 mobile homes with minor damage.

## GEORGIA, Southwest

**GAZ121-124>125-127-129>131-142>143-145-148-155>157-159>161** **Clay - Terrell - Dougherty - Worth - Tift - Ben Hill - Irwin - Early - Miller - Mitchell - Berrien - Seminole - Decatur - Grady - Brooks - Lowndes - Lanier**

<b>03</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>	<b>650K</b>			<b>Tropical Storm</b>
<b>04</b>	<b>1200EST</b>								

Tropical Storm Earl produced widespread moderate to heavy rain and strong winds as it trekked northeast from Southwest to East-central Georgia. Rainfall totals associated with Earl ranged from three to six inches. Peak wind gusts of 40 to 50 mph were common.

Ben Hill County officials reported several county roads closed due to high water, flooding of low-lying areas, and sporadic power outages. Berrien, Irwin, and Worth counties sustained minor flooding, downed trees and power lines. In Clay County, GA 37 and 39 were closed to high water and scattered debris. Several downed trees and power lines reported in Fort Gaines. Across Brooks, Grady, Miller, Tift, and Seminole counties, several county roads were closed to high water, downed trees and power lines. Dougherty County officials estimated 100 families were displaced to area shelters due to widespread flooding in Albany. GA 97 and 256 were closed to flooding and debris in Decatur County. Throughout Lanier County, numerous trees and power lines were down with roof damage to several residences. U.S. 27 south of Blakely and GA 45 from Arlington to Colquitt were closed to flooding. In Lowndes County, numerous trees littered roadways and some fell onto homes and vehicles. Scattered power outages affected 7,000 customers. In Mitchell County, a large tree fell onto a power line disrupting service to 3,400 customers. Terrell County officials reported several downed trees and power lines. A few homes sustained light to moderate damage from fallen trees. The Kinchafoonee Creek at Dawson, where the flood stage is 13 feet, crested at 13.6 feet on September 5.

### Mitchell County Camilla

<b>29</b>	<b>0505EST</b>	<b>3</b>	<b>.2</b>	<b>0</b>	<b>1</b>	<b>500K</b>			<b>Tornado (F1)</b>
	<b>0515EST</b>								

An F1 tornado struck Camilla on Mt. Zion Rd and GA 37 uprooting large pines, damaging a residence and farm machinery, and destroying a shed. A man was injured when his pickup truck was blown off GA 262. The tornado toppled numerous pecan trees as it travelled north of Camilla along U.S. 19.

### Thomas County Coolidge

<b>29</b>	<b>1440EST</b>	<b>1.2</b>	<b>.2</b>	<b>0</b>	<b>0</b>	<b>450K</b>			<b>Tornado (F1)</b>
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An F1 tornado touched down off Bayline Rd near Coolidge which uprooted trees and utility poles, damaged a camper and brick house, and destroyed the Patch Poultry Farm and its 45,000 chickens.

### Worth County Central Portion

<b>29</b>	<b>1510EST</b>			<b>0</b>	<b>0</b>	<b>350K</b>			<b>Thunderstorm Wind</b>
	<b>1530EST</b>								

Thunderstorms winds damaged several residences across Central Worth County. Numerous power outages as trees fell onto utility lines at Liberty Hill, Anderson City, Sylvester, Spring Flats Rd, Sumner, Ty Ty, Massey Airport Rd, and Gordy. In Anderson City, a barn was destroyed on Brooks Rd and a mobile home was blown off its foundation on Evergreen Rd. High winds overturned a school bus on GA 33 one mile south of Sylvester.

### Colquitt County Autreyville

<b>29</b>	<b>1515EST</b>	<b>2</b>	<b>.2</b>	<b>0</b>	<b>1</b>	<b>550K</b>			<b>Tornado (F1)</b>
-----------	----------------	----------	-----------	----------	----------	-------------	--	--	---------------------

An F1 tornado touched down at the intersection of GA 133 and South Morris Rd near Autreyville. One man was injured when his mobile home was blown into a ditch. Another mobile was destroyed. Several trees and power lines were toppled. The tornado destroyed one chicken farm and damaged another, and caused minor roof damage to a few houses.

### Worth County Isabella

<b>29</b>	<b>1600EST</b>	<b>1.7</b>	<b>.2</b>	<b>0</b>	<b>0</b>	<b>300K</b>			<b>Tornado (F1)</b>
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An F1 tornado briefly touched down on GA 520 between Poulan and Ty Ty. It skipped over and descended on the 850-acre Boy Scout Camp Osborn outside Isabella causing extensive damage to the dining hall and pool facilities. The tornado uprooted more than 1,000 trees.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## GEORGIA, Southwest

### **Decatur County**

**Bainbridge**      **29**      **1730EST**      **0.6**      **.1**      **0**      **0**      **50K**      **Tornado (F0)**

A brief F0 tornado touchdown just south of Bainbridge on GA 97. Some trees and power lines down.

### **Miller County**

**Southwest Portion**      **29**      **1905EST**                **0**      **0**      **250K**      **Thunderstorm Wind**  
Thunderstorm winds severely damaged the United Primitive Baptist Church and cemetery eight miles southwest of Colquitt.

### **Miller County**

**Colquitt to  
Northeast Portion**      **29**      **1930EST**      **2**      **.3**      **0**      **2**      **750K**      **Tornado (F1)**

A strong F1 tornado destroyed a doublewide trailer off Cooktown Rd about 12 miles east of Colquitt. Two of the three occupants were critically injured. The tornado moved north and struck a neighboring farm and ripped roofs off outbuildings, twisted sheet metal, and destroyed a grain bin and farm equipment.

## GEORGIA, West Central

### **Stewart County**

**Lumpkin**      **29**      **1130EST**                **0**      **0**      **0**      **0**      **Funnel Cloud**

A funnel cloud was reported near Lumpkin.

### **Quitman County**

**Countywide**      **29**      **1150EST  
1620EST**                **0**      **0**      **35K**      **10K**      **Flash Flood**

### **Stewart County**

**County Line**      **29**      **1150CST  
1620CST**                **0**      **0**      **25K**      **8K**      **Flash Flood**

The remnants of Hurricane Georges dumped 5+ inches of rain across the two counties. Numerous roads were covered with water and many roads were impassable and closed.

## HAWAII

NOT RECEIVED.

## IDAHO, Extreme Southeast

NONE REPORTED.

## IDAHO, North

NONE REPORTED.

## IDAHO, Northwest

### **Nez Perce County**

**Lewiston**      **08**      **1600PST  
1730PST**                **0**      **0**      **30K**      **0**      **Flood**

Rainfall amounts of up to 0.87" caused local flooding around the city of Lewiston, especially in parking lots and city streets. The heavy rain also caused several mudslides which closed roads. A lightning strike set a power pole on fire.

### **Kootenai County**

**4 SE Worley**      **14**      **1215PST  
2100PST**                **0**      **0**      **20K**      **0**      **Wild/Forest Fire**

A 30 acre grass fire spread into timber land, closing Sunny Slope Road. Breezy winds helped carry the fire.

### **Shoshone County**

**1 N Kingston**      **14  
15**      **1400PST  
1800PST**                **0**      **0**      **20K**      **0**      **Wild/Forest Fire**

A 40 acre fire spread out of control, due mostly to breezy conditions.

### **Nez Perce County**

**Lewiston**      **25**      **1715PST  
1900PST**                **0**      **0**      **40K**      **0**      **Flood**

Over three quarters of an inch caused local flooding around the city of Lewiston. Flooding occurred on the interstate bridge, closing it for two hours. Several roads were covered by up to 2 feet of water.

## IDAHO, Southeast

### **Custer County**

**7 W Clayton to  
3 W Clayton**      **06**      **1405MST  
1450MST**                **0**      **0**                **Flash Flood**

TSTM induced flash flood on Slate Creek washed out 200 yards of Slate Creek Road. Camping trailer damaged. Several vehicles trapped beyond road break.

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>IDAHO, Southeast</u></b>									
Cassia County 3 S Burley	10	1125MST			0	0			Funnel Cloud
Bannock County Inkom	12	1520MST 1735MST			0	0			Flash Flood
TSTM caused flash flood washed out several canyon roads.									
Bannock County Pocatello	12	1550MST 1800MST			0	0			Urban/Sml Stream Fld
TSTM caused flooding of city underpasses flooded up to 4'. Some basements flooded, including courthouse. Senior citizens home evacuated.									
Bonneville County Idaho Falls	12	1830MST 1930MST			0	0			Urban/Sml Stream Fld
TSTM caused city underpasses to flood up to 6' deep. Some cars sunk. Dozens of basements flooded.									
Bannock County Inkom	30	1624MST			0	3			Lightning
Struck during football game injuring 3 boys. All hospitalized; one critical. All recovered.									
Bannock County Pocatello	30	1740MST			0	0			Urban/Sml Stream Fld
TSTM caused city underpasses to flood.									
Bannock County Chubbuck	30	1804MST			0	0			Lightning
Caused house fire.									
<b><u>IDAHO, Southwest</u></b>									
Ada County Boise	06	1630MST 1745MST			0	0			Urban/Sml Stream Fld
Boise County Garden Vly to Lowman	06	1630MST 1720MST			0	0			Urban/Sml Stream Fld
Ada County Boise	06	1700MST			0	0	8K		Thunderstorm Wind (G62)
During the evening of September 6th scattered thunderstorms moved through the Treasure Valley and Boise Mountains with heavy rain and isolated wet microbursts. In and around Boise numerous reports of street flooding were received while in Boise County a number of small mud slides covered the road between Garden Valley and Lowman. Winds gusted to an estimated 60 to 70 mph at the NWS office in Boise, while numerous reports of trees down were received from around the city. Winds toppled a tree onto a car and caused scattered power outages.									
Ada County Boise	07	1625MST 1645MST			0	0			Urban/Sml Stream Fld
Ada County Boise	07	1640MST			0	0	10K		Lightning
Ada County Boise	07	1640MST 1650MST			0	0	20K		Thunderstorm Wind (G55)
Scattered thunderstorms produced heavy rains and isolated wet microbursts in the Boise area. Numerous reports of street flooding were received from around the city. Lightning caused a structure fire in Boise while about 3000 people were without power due to trees falling on power lines. At Shadow Valley on the outskirts of Boise, winds ripped two sections of roof off of an elementary school.									
Washington County Weiser	08	1655MST			0	0			Thunderstorm Wind (G50)
Adams County Council	08	1730MST			0	0			Thunderstorm Wind (G50)
A thunderstorm produced wind gusts which toppled trees in and near Weiser and near Council in Adams County.									
<b><u>ILLINOIS, Central</u></b>									
Vermilion County Brothers	20	1215CST			0	0	0		Thunderstorm Wind
Thunderstorm winds blew off the roof of a barn in Brothers. Some of the debris was blown into a nearby house causing minor									

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ILLINOIS, Central

damage. No injuries were reported and no damage estimate was available.

## ILLINOIS, Northeast

### **Cook County**

#### **Orland Park**

**07 0110CST** **0 0** **Thunderstorm Wind (G50)**  
Thunderstorm winds caused damage around the intersection of Wolf Road and 159th Street. Two stoplights were blown down and 3 power poles were snapped. There was extensive tree damage in a two block area mainly northwest of the intersection. Slate shingles from an old historic schoolhouse on 159th were blown across the road. Some of the shingles broke windows or became imbedded in a truck and van. A bank building also had some roof damage and a metal pole building northeast of the intersection was damaged.

### **Kendall County**

#### **Lisbon**

**20 1500CST** **0 0** **Thunderstorm Wind (G50)**  
Trees were blown down.

### **Will County**

#### **Romeoville to Lockport**

**20 1520CST** **0 0** **Thunderstorm Wind (G50)**  
Winds gusted to 60 mph at the NWS office in Romeoville. Tree limbs were downed in Lockport.

### **Will County**

#### **Romeoville**

**30 1357CST** **0 0** **Thunderstorm Wind (G53)**  
A 61 mph wind gust was recorded at the Lewis Airport AWOS in Romeoville.

### **Cook County**

#### **Orland Park**

**30 1425CST** **0 0** **Thunderstorm Wind (G52)**  
A 60 mph wind gust was recorded on an anemometer.

## ILLINOIS, Northwest

### **Bureau County**

#### **1 N Princeton to Princeton**

**06 1910CST** **0 0** **Thunderstorm Wind (G52)**  
Very heavy rain and strong thunderstorm winds caused problems for drivers on I-80 north of Princeton.

## ILLINOIS, South

### **ILZ075>078-080>094**

**Jefferson - Wayne - Edwards - Wabash - Perry - Franklin - Hamilton - White - Jackson - Williamson - Saline - Gallatin - Union - Johnson - Pope - Hardin - Alexander - Pulaski - Massac**  
**01 0001CST** **0 0** **Drought**  
**30 2359CST**

September, 1998 was one of the driest Septembers on record in southern Illinois. Across the Ohio River at Paducah, Kentucky, where the monthly rainfall total was only 0.12 inch, it was the driest September on record. The dry weather was costly to farmers of certain crops, especially soybeans. The drought reduced yields for soybeans and late-planted corn by 25 to 30 percent in some counties. The drought, which was classified as "mild," began in early August. The lack of rainfall late in the summer was mitigated by one of the wettest springs on record.

## ILLINOIS, Southwest

NONE REPORTED.

## INDIANA, Central

NONE REPORTED.

## INDIANA, Northeast

NONE REPORTED.

## INDIANA, Northwest

NONE REPORTED.

## INDIANA, South Central

NONE REPORTED.

## INDIANA, Southeast

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>INDIANA, Southwest</u></b>									
<b>Vanderburgh County</b> 5 W Evansville	18	1822CST			0	0			Hail (0.75)
<b>Spencer County</b> 2 SW Gentryville	18	1937CST			0	0			Hail (0.75)
<b><u>IOWA, Central</u></b>									
<b>Palo Alto County</b> Ruthven	01	1501CST			0	0	0.20K	30K	Hail (0.88)
<b>Palo Alto County</b> Ruthven	01	1505CST			0	0		10K	Hail (0.75)
<b>Palo Alto County</b> 13 SW Emmetsburg	01	1515CST			0	0		30K	Hail (0.75)
<b>Pocahontas County</b> Palmer	01	1622CST			0	0		10K	Hail (0.75)
<b>Pocahontas County</b> Palmer	01	1625CST			0	0	35K	50K	Hail (2.00)
<b>Bremer County</b> Sumner	01	1845CST			0	0	40K	5K	Hail (1.50)
A cold front moved into northwest Iowa during the afternoon hours. The airmass was not very moist, with surface dew point temperatures only in the mid 60s F., however cold air aloft created an unstable atmosphere with lifted indices approaching -10 C. A few thunderstorms erupted along the front in northwest Iowa. One of them became severe and produced hail intermittently. For the most part the storm produced pea to marble size hail. A couple times in its lifetime it produced three quarter to one inch diameter hail. At its peak, the storm produced large hail in the Palmer area of Pocahontas County. Reports indicated hail of 2 inches in diameter over the city, causing damages to roofs and nearby crops there. The storm was pulse in nature and only lasted about 90 minutes before it dissipated. The storms strengthened briefly during the early evening hours, dropping hail in the Sumner area of Bremer County during the evening hours. Damage was caused to roofs and cars in the area. Due to the maturity of the crops, damage was minor to crops.									
<b>Wright County</b> Clarion	26	0603CST			0	0	1K		Hail (0.75)
A very strong low level jet formed over the Central Plains during the early morning hours of the 26th with wind speeds in excess of 70 knots at times. Surface dew point temperatures were in the low 70s ahead of an approaching area of low pressure. Thunderstorms erupted along the northwest edge of the mid level cap before midnight with a line of thunderstorms progressing southeast across the northwest half of the state. Over northwest Iowa, a heat burst took place along the southeast edge of the of the line shortly before midnight. Temperatures rose into the upper 80s to low 90s from Sioux City to Estherville. Other than that, most of the storms produced only gusty winds and small hail. One storm dropped dime size hail briefly on the town of Clarion in Wright County. There was no other reports of severe weather however.									
<b><u>IOWA, East Central and Southeast</u></b>									
NONE REPORTED.									
<b><u>IOWA, Northeast</u></b>									
NONE REPORTED.									
<b><u>IOWA, Northwest</u></b>									
<b>IAZ003-013&gt;014-020&gt;021-031</b>									
<b>Dickinson - O'Brien - Clay - Plymouth - Cherokee - Woodbury</b>									
	25	2015CST 2330CST			0	0	70K		High Wind (G50)
Strong winds in a heat burst caused tree and power line damage. The winds also blew over a few small sheds and a large corn dryer.. The winds were accompanied by rapid warming with temperatures rising into the 90s in the late evening. The affected area extended from Sioux City northeast to Spirit Lake.									
<b><u>IOWA, Southwest</u></b>									
NONE REPORTED.									
<b><u>KANSAS, East</u></b>									
<b>Clay County</b> Clay Center	20	1630CST 1800CST			0	0			Heavy Rain
Heavy rains fell across Clay county during the evening hours. Clay Center received 4.97 inches of rain but there were public report s									

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>KANSAS, East</u></b>									
			of as much as 6 to 7 inches south and east of Clay Center. A road east of Clay Center was flooded for a time.						
<b>Clay County</b> 5 S Clay Center	20	1642	CST		0	0			Hail (1.75)
<b>Clay County</b> 7 S Clay Center	20	1645	CST		0	0			Hail (1.75)
<b>Clay County</b> 4 NW Wakefield	20	1700	CST		0	0			Hail (1.75)
<b>Clay County</b> Wakefield	20	1730	CST		0	0			Hail (1.75)
<b>Clay County</b> 1 NE Wakefield	20	1730	CST		0	0			Hail (1.75)
<b>Clay County</b> Wakefield	20	1730	CST		0	0			Thunderstorm Wind (G60)
	Large trees were blown down.								
<b>Jackson County</b> Holton	21	0005	CST		0	0	5K		Lightning
	Lightning struck a transformer doing damage to it and causing about an hour long power outage in part of Holton.								
<b>Douglas County</b> Lawrence	21	0010	CST		0	0	60K		Lightning
	Lightning struck a business and started a fire which did about 60 thousand dollars damage.								
<b>Shawnee County</b> 7 NNE Topeka	21	0530	CST		0	0	90K		Lightning
	Lightning struck a house and started a fire which did about 90 thousand dollars damage.								
<b>Lyon County</b> Emporia	24	0400 0800	CST CST		0	0			Urban/Sml Stream Fld
	Three to 5 inches of rain caused flooding in Emporia and surrounding areas stalling cars and closing several streets temporarily. A car was submerged beneath a flooded underpass but the occupants escaped without harm.								
<b>Anderson County</b> Garnett	24	0600 1000	CST CST		0	0	20K		Urban/Sml Stream Fld
	Up to 8 inches of rain caused flooding in Garnett and surrounding areas causing numerous road closures and damage around 20 thousand dollars.								
<b>Washington County</b> Morrowville	27	1155	CST		0	0			Hail (0.75)
<b>Washington County</b> 2 S Hanover	27	1221	CST		0	0			Hail (0.75)
<b>Pottawatomie County</b> 5 NE Westmoreland	28	0045	CST		0	0			Hail (1.75)
<b>Douglas County</b> Lawrence	28	2033	CST		0	0			Hail (0.75)
<b>Jefferson County</b> 5 S Oskaloosa	28	2038	CST		0	0			Hail (0.75)
<b>Jefferson County</b> 5 SE Oskaloosa	28	2045	CST		0	0			Hail (1.25)
<b>Franklin County</b> 6 NW Ottawa	28	2135	CST		0	0			Hail (0.75)
<b>Franklin County</b> Ottawa	28	2140	CST		0	0			Hail (1.75)
<b>Riley County</b> Manhattan	28	2310	CST		0	0	5K		Lightning
	Lightning struck a transformer near Kansas Stata University and knocked out power to much of the campus for a time.								
<b>Jefferson County</b> 12 N Oskaloosa	28	2323	CST		0	0			Hail (0.88)
<b>Pottawatomie County</b> 10 NW St Marvs	28	2333	CST		0	0			Thunderstorm Wind (G56)



# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>KANSAS, East</u></b>									
<b>Pottawatomie County</b> 10 N St Marys	28	2333CST			0	0			Thunderstorm Wind (G55)
<b>Pottawatomie County</b> 8 WNW St Marys	28	2339CST			0	0			Thunderstorm Wind (G61)
<b>Wabaunsee County</b> Maple Hill	28	2345CST			0	0			Thunderstorm Wind (G61)
<b>Shawnee County</b> Rossville	28	2353CST			0	0			Thunderstorm Wind (G61)
		Numerous trees were reported down along U.S. Highway 24 near Rossville from 70 mph winds.							
<b>Shawnee County</b> 8 SSE Topeka	29	0006CST			0	0			Thunderstorm Wind (G60)
<b>Shawnee County</b> 4 SW Topeka	29	0010CST			0	0			Thunderstorm Wind (G56)
<b>Shawnee County</b> 6 S Topeka	29	0020CST			0	0	30K		Thunderstorm Wind (G68)
		Winds to 78 mph destroyed several buildings and damaged a hanger at Forbes Field.							
<b>Osage County</b> 4 N Overbrook	29	0032CST			0	0			Thunderstorm Wind (G52)
<b>Osage County</b> 4 N Overbrook	29	0035CST			0	0			Hail (0.88)
<b>Osage County</b> 4 N Overbrook	29	0035CST			0	0			Thunderstorm Wind (G52)
<b>Franklin County</b> 1 W Centropolis	29	0050CST			0	0			Thunderstorm Wind (G61)
<b>Douglas County</b> 15 SW Lawrence	29	0052CST			0	0			Thunderstorm Wind (G56)
<b>Franklin County</b> Ottawa	29	0104CST			0	0			Thunderstorm Wind (G52)
		Severe thunderstorms moved southeast across parts of northeast and east central Kansas producing strong winds that did considerable damage to businesses, buildings and trees. Numerous power outages were reported from downed power lines.							
<b>Dickinson County</b> 10 SW Abilene	29	1322CST			0	0			Hail (0.88)
<b>Dickinson County</b> 13 SSW Abilene	29	1324CST			0	0			Hail (1.00)
<b>Dickinson County</b> 10 SW Abilene	29	1324CST			0	0			Hail (0.75)
<b>Clay County</b> 4 SE Clay Center	29	2023CST			0	0			Hail (0.75)
<b>Pottawatomie County</b> St Marys	29	2215CST			0	0			Thunderstorm Wind (G60)
		Strong winds uprooted trees and scattered limbs. Temporary power outages were reported.							
<b><u>KANSAS, Extreme Southeast</u></b>									
<b>Bourbon County</b> Countywide	13 15	1600CST 1600CST			0	0	1M	978K	Flood
<b>Cherokee County</b> Countywide	13 14	2245CST 2245CST			0	0			Flood
<b>Crawford County</b> Countywide	13 14	2245CST 1700CST			0	0			Flood
		Heavy rain of 5 to 12 inches fell over portions of extreme southeast Kansas. Unoffical reports of rainfall as high as 14 inches was reported in Bourbon County Kansas. The hardest hit areas were along the Marmaton River in Bourbon County including Ft. Scott. The highest estimated stage of the Marmaton River at Ft. Scott reached 50.05 feet on 9/14/98 which is the second highest stage ever recorded (records date back to the late 1800s).							

Some specific damage reports:

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
		Character of Storm							

## KANSAS, Extreme Southeast

Bourbon County: Widespread river flooding occurred in northern sections of Ft. Scott affecting numerous homes and businesses. Flood water receded fairly quickly and water damage was confined to lower floors and basements. Many businesses had to close for two or three days due to the flooding and associated clean up. Several highways and bridges were damaged due to the flood waters.

Agricultural damage in Bourbon County was mainly confined to the Marmaton River flood plain. Crop losses included 2300 acres of corn (40% yield loss), 7500 acres of soybeans (50% yield loss), and 500 acres of grain sorghum (75% yield loss). In addition, 200 head of cattle were lost. Farms along the Marmaton River also suffered damage to grazing land (topsoil damage) and damage to fencing.

Crawford and Cherokee Counties: Flooding and flash flooding was mainly confined to low lying roads and bridges.

## KANSAS, North Central

### **Osborne County**

<b>11 S Alton</b>	<b>29</b>	<b>0815CST</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Hail (0.75)</b>
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## KANSAS, Northeast

### **Atchison County**

<b>5 SW Atchison</b>	<b>27</b>	<b>2350CST</b>		<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
	<b>28</b>	<b>2350CST</b>						

Dime-size hail was reported by the Atchison County Sheriff's Office at the intersection of Highway 59 and 262nd Road. This location is approximately 5 miles southwest of Atchison.

### **Leavenworth County**

<b>Tonganoxie to Basehor</b>	<b>28</b>	<b>2042CST 2058CST</b>		<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
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Severe weather spotters reported golfball-size hail in Basehor and 2 miles southwest of Tonganoxie. Another spotter reported dime-size hail in Tonganoxie.

### **Wyandotte County**

<b>Kansas City</b>	<b>28</b>	<b>2118CST</b>		<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
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One inch diameter hail was reported by the Kansas City, KS Fire department at the intersection of 67th and Leavenworth.

### **Miami County**

<b>4 E Paola</b>	<b>28</b>	<b>2220CST</b>		<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G60)</b>
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Severe thunderstorm winds knocked several large trees down 4 miles east of Paola.

### **Linn County**

<b>Pleasanton to La Cygne</b>	<b>28</b>	<b>2305CST</b>		<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G60)</b>
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Numerous large trees were blown down by severe thunderstorm winds in Pleasanton and La Cygne.

### **Leavenworth County**

<b>Basehor</b>	<b>28</b>	<b>2340CST</b>		<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G60)</b>
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Severe thunderstorm winds gusted to 60 MPH at the intersection of Highways 7 and 73 on the east side of Basehor.

### **Leavenworth County**

<b>2 W Leavenworth</b>	<b>28</b>	<b>2345CST</b>		<b>0</b>	<b>0</b>			<b>Hail (0.88)</b>
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Nickel-size hail was reported 2 miles west of Leavenworth by the Leavenworth County Sheriff's Office.

## KANSAS, Northwest

### **Sherman County**

<b>7 W Goodland</b>	<b>13</b>	<b>1853MST</b>		<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
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### **Cheyenne County**

<b>5 E Bird City</b>	<b>13</b>	<b>1905CST</b>		<b>0</b>	<b>0</b>	<b>1K</b>		<b>Thunderstorm Wind (G60)</b>
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Wind ripped new skirting off house.

### **Rawlins County**

<b>2 SW Mc Donald</b>	<b>13</b>	<b>1906CST</b>		<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G60)</b>
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### **Sheridan County**

<b>1 W Studley</b>	<b>29</b>	<b>0740CST</b>		<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
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### **Graham County**

<b>5 NW Morland</b>	<b>29</b>	<b>0750CST</b>		<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
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## KANSAS, Southeast

### **KSZ072-100**

### **Allen - Labette**

<b>13</b>	<b>0300CST</b>	<b>0</b>	<b>0</b>	<b>50K</b>	<b>Flood</b>
<b>14</b>	<b>0700CST</b>				

Remnants of "Frances" produced widespread 5-8 inch rains across Allen County that resulted in widespread street flooding, the

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>KANSAS, Southeast</u></b>									
			majority of which occurred across the northern half of the county.						
<b>Mcpherson County</b>									
Roxbury	20	1520CST			0	0			Hail (0.75)
<b>Marion County</b>									
5 E Durham	20	1555CST			0	0			Hail (0.75)
<b>Mcpherson County</b>									
2 NW Roxbury	20	1600CST			0	0			Hail (1.00)
<b>Marion County</b>									
6 NW Durham	20	1614CST			0	0			Hail (0.75)
<b>Marion County</b>									
Durham	20	1617CST			0	0			Hail (0.75)
<b>Mcpherson County</b>									
Lindsborg	20	1643CST			0	0			Hail (0.75)
<b>Marion County</b>									
Tampa	20	1723CST			0	0			Hail (1.50)
<b>Sumner County</b>									
South Haven	21	1815CST			0	0			Hail (0.75)
<b>Sumner County</b>									
4 SE South Haven	21	1827CST			0	0	25K		Thunderstorm Wind (G52)
			Window blown out at South Haven Cafe and a tree fell onto a house in South Haven.						
<b>Reno County</b>									
Willowbrook	27	1705CST			0	0			Hail (1.75)
<b>Reno County</b>									
Hutchinson	27	1730CST			0	0			Hail (1.75)
<b>Reno County</b>									
3 NE Hutchinson	27	1735CST			0	0			Hail (1.00)
<b>Reno County</b>									
South Hutchinson	27	1735CST			0	0			Hail (0.75)
<b>Reno County</b>									
South Hutchinson	27	1739CST			0	0			Hail (0.88)
<b>Reno County</b>									
Pretty Prairie	27	1817CST			0	0			Thunderstorm Wind (G52)
<b>Kingman County</b>									
Kingman	27	1832CST			0	0			Thunderstorm Wind (G52)
<b>Reno County</b>									
Pretty Prairie	27	1839CST			0	0	25K		Thunderstorm Wind (G61)
			Fuel tank blown over as were several power poles in Partridge.						
<b>Reno County</b>									
Plevna	27	1900CST			0	0			Hail (2.50)
<b>Reno County</b>									
Plevna	27	1917CST			0	0			Thunderstorm Wind (G52)
<b>Kingman County</b>									
Kingman	27	2038CST			0	0			Thunderstorm Wind (G52)
<b>Kingman County</b>									
17 NW Kingman	27	2055CST			0	0			Thunderstorm Wind (G56)
<b>Harper County</b>									
6 NE Harper	27	2130CST			0	0	8K		Thunderstorm Wind (G56)
			Eight power poles blown down along highway K-2.						
<b>Chase County</b>									
9 W Elmdale	29	1435CST			0	0			Thunderstorm Wind (G52)
<b>Barton County</b>									
4 N Albert	29	1804CST			0	0			Hail (1.00)
<b>Barton County</b>									
6 W Hoisington	29	1810CST			0	0			Hail (1.75)
<b>Barton County</b>									
6 NW Great Bend	29	1831CST			0	0			Hail (1.75)

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>KANSAS, Southeast</u></b>									
<b>Barton County</b>									
Hoisington	29	1831CST	1	110	0	0			Tornado (F0)
		Occurred just south of Hoisington.							
<b>Barton County</b>									
2 S Hoisington	29	1833CST	1	110	0	0			Tornado (F0)
<b>Barton County</b>									
Great Bend	29	1853CST			0	0			Hail (1.00)
<b>Barton County</b>									
4 NE Great Bend	29	1858CST			0	0			Hail (1.75)
<b>Greenwood County</b>									
Madison	29	1904CST			0	0			Hail (0.75)
<b>Barton County</b>									
Ellinwood	29	1911CST			0	0			Hail (1.25)
<b>Wilson County</b>									
Buffalo	29	2019CST			0	0			Hail (1.00)
<b>Wilson County</b>									
8 SE Buffalo	29	2022CST			0	0			Hail (1.00)
<b>Barton County</b>									
3 SE Great Bend	29	2030CST			0	0	25K		Thunderstorm Wind (G52)
		Barn blown over.							
<b>Neosho County</b>									
8 SE Chanute	29	2050CST			0	0			Hail (1.00)
<b>Neosho County</b>									
Chanute	29	2050CST			0	0			Hail (0.75)
<b>Neosho County</b>									
Thayer	29	2110CST			0	0			Thunderstorm Wind (G52)
		Ten inch diameter tree limbs blown down.							
<b>Rice County</b>									
Little River	29	2245CST			0	0		20K	Hail (2.75)
		Eightteen head of cattle were killed.							
<b>Rice County</b>									
Lyons	29	2248CST			0	0			Thunderstorm Wind (G64)
<b>Allen County</b>									
Iola	29	2327CST			0	0	10K		Thunderstorm Wind (G61)
		trees and power lines downed.							
<b>Mcpherson County</b>									
Windom	30	0001CST 0004CST			0	0	100K		Thunderstorm Wind (G65)
		Grain bins blown over, power lines and power poles blown down, houses sustained damage to roofs, siding and windows, and vehicles had windows blown out.							
<b>Mcpherson County</b>									
Windom	30	0004CST			0	0			Hail (1.00)
<b><u>KANSAS, Southwest</u></b>									
<b>Stevens County</b>									
4 W Woods	09	1434CST			0	0			Hail (0.88)
<b>Hamilton County</b>									
17 S Syracuse	23	1605MST			0	0			Hail (0.88)
<b>Stanton County</b>									
12 NW Johnson	23	1631CST			0	0			Hail (1.75)
<b>Stanton County</b>									
12 N Manter	23	1635CST			0	0			Hail (1.75)
<b>Stanton County</b>									
5 N Johnson	23	1640CST			0	0			Hail (2.25)
<b>Stanton County</b>									
10 N Johnson	23	1658CST			0	0			Hail (1.00)

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>KANSAS, Southwest</u></b>									
<b>Stafford County</b> 6 NE Hudson	27	1600CST			0	0			Hail (1.00)
<b>Stafford County</b> 8 N Zenith	27	1636CST			0	0			Hail (2.00)
Hail piled 4 inches deep at the Quivira Wildlife Refuge park. A grader had a windshield broken.									
<b>Pratt County</b> 3 NW Pratt	27	2048CST			0	0			Hail (0.75)
<b>Pratt County</b> 3 NW Pratt	27	2048CST			0	0			Thunderstorm Wind (G65)
<b>Pratt County</b> 4 N Pratt	27	2050CST			0	0	850K		Thunderstorm Wind (G87)
Microburst occurred...centered about 4 miles north of Pratt. The impact point was 4 miles north of Highway 54 and 1/2 mile east of Highway 281. Area extended 3 miles northwest through southwest with the greatest damage at the Pratt airport. Five buildings had considerable damage...7 with major damage and 18 had minor damage. Debris was carried for miles past the impact point. A John Deere tractor had a 16 foot long 2x4 impaled into the engine compartment. Three sprinkler irrigation systems were destroyed.									
<b>Pratt County</b> 2 W Sawyer	27	2100CST			0	0	100K		Thunderstorm Wind (G65)
Two irrigation sprinklers were overturned.									
<b>Pratt County</b> Pratt	27	2101CST			0	0			Thunderstorm Wind (G53)
Logged by a KSNW-tv weather lab site.									
<b>Barber County</b> 5 SW Isabel	27	2119CST			0	0	100K		Thunderstorm Wind
Microburst caused extensive damage to the Lake Arrowhead resort area. Several boat docks were destroyed. Part of a roof was taken off a cabin/house. A Garage under construction was completely destroyed. Damage was about 3 miles wide long starting near the resort and extending south and southwest. The length of the damage area was unknown due to range land extending beyond the resort. There were also six, very large-mature cottonwood trees uprooted with heavy damage to the remainder of the trees in the area.									
<b>Barber County</b> 2 W Medicine Lodge	27	2120CST			0	0	5K		Thunderstorm Wind
Large tree toppled by the high wind.									
<b>Barber County</b> 7 E Medicine Lodge	27	2150CST			0	0	15K		Thunderstorm Wind
Numerous trees were uprooted.									
<b>Barber County</b> 4 N Hazelton	27	2213CST	0.1	50	0	0			Tornado (F0)
<b>Stanton County</b> 4 S Big Bow	28	1530CST			0	0			Hail (1.00)
<b>Grant County</b> 7 SW Ulysses	28	1550CST			0	0			Hail (1.00)
<b>Grant County</b> 6 SE Ulysses	28	1551CST			0	0			Hail (1.50)
<b>Grant County</b> 15 ENE Ulysses	28	1625CST			0	0			Hail (1.00)
<b>Grant County</b> 15 ENE Ulysses	28	1625CST			0	0			Thunderstorm Wind (G62)
<b>Haskell County</b> 18 N Satanta	28	1645CST			0	0			Hail (0.75)
<b>Haskell County</b> 18 N Satanta	28	1645CST			0	0			Thunderstorm Wind (G52)
<b>Finney County</b> 12 S Garden City	28	1701CST			0	0			Hail (1.00)
<b>Finney County</b> Pierceville	28	1725CST			0	0			Hail (0.75)
<b>Gray County</b> 7 NNW Charleston	28	1732CST			0	0			Hail (1.00)

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
Killed	Injured	Property	Crops						
<b><u>KANSAS, Southwest</u></b>									
<b>Rush County</b> 5 S Timken	28	2010CST			0	0			Thunderstorm Wind (G52)
Three inch diameter tree limbs blown down.									
<b>Rush County</b> Otis	29	1757CST			0	0			Lightning
Numerous grass fires were started by lightning in the Otis area.									
<b>Rush County</b> Otis	29	1757CST			0	0			Thunderstorm Wind (G52)
<b>Rush County</b> Otis	29	1802CST			0	0			Hail (1.00)
<b>Rush County</b> 2 N Otis	29	1810CST			0	0			Hail (1.75)
Windows broke out of a house and car. Siding and a roof were heavily damaged.									
<b>Rush County</b> 3 SW Loretta	29	1907CST			0	0			Hail (1.00)
<b>Rush County</b> 3 S Liebenthal	29	1915CST			0	0			Hail (0.75)
<b>Rush County</b> 4 SE Liebenthal	29	1915CST			0	0			Hail (0.75)
Hail completely covered the ground.									
<b>Rush County</b> Loretta	29	1920CST			0	0			Hail (1.00)
<b><u>KENTUCKY, Central</u></b>									
<b>Nelson County</b> Bardstown	21	0600EST 0800EST			0	0			Urban/Sml Stream Fld
Heavy rain caused minor street flooding.									
<b><u>KENTUCKY, Eastern</u></b>									
<b>Floyd County</b> 2.5 NE Prestonsburg	21	1315EST 1415EST			0	0	10K	0	Flash Flood
Flash flooding occurred Monday afternoon for about one hour at Stratton Branch. The water roared down a hillside and knocked buildings from their foundation, pulled a culvert loose and tore up chunks of pavement. Two mobile homes sustained flood damage.									
<b>Pulaski County</b> Somerset	29	1630EST			0	0	3K	0	Thunderstorm Wind
Power lines downed.									
<b>Elliott County</b> Bruin	29	1940EST			0	0	3K	0	Thunderstorm Wind
Trees and power lines downed at the intersection of Route 7 and HWY 504.									
<b><u>KENTUCKY, Northeast</u></b>									
<b>KYZ101&gt;103-105</b>	<b>Greenup - Carter - Boyd - Lawrence</b>								
	01	0000EST			0	0			Monthly Rainfall
	30	2300EST							
The total monthly rainfall was less than an inch for most of extreme northeast Kentucky. Some representative totals included Greenup with only 0.32 inches, Olive Hill 0.40 inches, Warnock 0.43 inches, Louisa 0.61 inches, Grayson 0.65 inches, and Ashland 0.83 inches.									
<b>KYZ101&gt;103-105</b>	<b>Greenup - Carter - Boyd - Lawrence</b>								
	14	1100EST			0	0			Record Heat
	15	1800EST							
The hottest temperatures of the summer occurred. The dry pattern during the late summer contributed to the heat. Readings peaked in the mid and upper 90s on the 14th. Preliminary data indicated that Ashland reached 99 degrees.									
<b><u>KENTUCKY, Northern</u></b>									
<b>Kenton County</b> Ft Mitchell	21	1959EST 2100EST			0	0			Flood
Persistent heavy rainfall caused Interstate 75 to be closed due to high water.									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998	Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops		

## KENTUCKY, Southwest

<b>KYZ001&gt;022</b>	<b>Fulton - Hickman - Carlisle - Ballard - Mcracken - Graves - Livingston - Marshall - Calloway - Crittenden - Lyon - Trigg - Caldwell - Union - Webster - Hopkins - Christian - Henderson - Daviess - Mclean - Muhlenberg - Todd</b>									
	<b>01</b>	<b>0001CST</b>			<b>0</b>	<b>0</b>				<b>Drought</b>
	<b>30</b>	<b>2359CST</b>								

September, 1998 was the driest September on record at Paducah, where rainfall for the month totalled only 0.12 inch. The dry weather was very costly to farmers of certain crops, especially soybean farmers. The drought reduced yields for soybeans and late-planted corn by 25 to 30 percent in some counties. The dry conditions prompted authorities in several counties to impose no-burn orders. Those counties under no-burn orders included Lyon, Ballard, Daviess, and Livingston. One large brush fire that started around September 13 consumed 650 acres just south of Central City in Muhlenberg County. The drought, which was classified as "mild," began in early August. The lack of rainfall late in the summer was mitigated by one of the wettest springs on record at Paducah. Low water levels on the Mississippi River resulted in the cancellation of a cruise barge stop in Hickman.

<b>McLean County</b> <b>3 NW Calhoun</b>	<b>18</b>	<b>1605CST</b>			<b>0</b>	<b>0</b>				<b>Hail (0.75)</b>
<b>Daviess County</b> <b>6 E Utica</b>	<b>18</b>	<b>1705CST</b>			<b>0</b>	<b>0</b>				<b>Hail (0.75)</b>
	Dime size hail was reported on U.S. 231 near Kentucky 140.									
<b>Calloway County</b> <b>Murray</b>	<b>20</b>	<b>1405CST</b> <b>1600CST</b>			<b>0</b>	<b>0</b>	<b>80K</b>			<b>Flash Flood</b>

Slow-moving thunderstorms dumped around 4 inches of rain in a couple hours at Murray. Street and low-lying flooding was widespread. Cars were stranded in flooded intersections, and several homes were flooded.

## LOUISIANA, Northeast

NONE REPORTED.

## LOUISIANA, Northwest

<b>Natchitoches Parish</b> <b>Provencal</b>	<b>12</b>	<b>1000CST</b>			<b>0</b>	<b>0</b>				<b>Heavy Rain</b>
	Co-op observer reported 7.33 inches of rain in 14 hour rainfall total of 7.33 inches.									

## LOUISIANA, Southeast

NOT RECEIVED.

## LOUISIANA, Southwest

<b>LAZ051&gt;054</b>	<b>Cameron - Vermilion - Iberia - St. Mary</b>									
	<b>01</b>	<b>1500CST</b>			<b>0</b>	<b>0</b>	<b>32K</b>			<b>Hurricane</b>
	<b>02</b>	<b>0700CST</b>								

Hurricane Earl was the second tropical system to affect southwest Louisiana in two weeks. Minimal damage was reported along the coast from Cameron to Morgan City. Some additional beach erosion did occur with tides running between 3.0 and 3.5 MSL, but the damage was not as severe as what occurred with Tropical Storm Charley.

Highest winds were only in the 20 to 30 mph range along the coast. The greatest rainfall occurred around the Morgan City area, where between one and two inches of rain fell.

Most offshore oil rigs did evacuate, which accounted for as many as 10,000 people off the southwest Louisiana Gulf coast. Corp of Engineer Locks along the Intracoastal Waterway reported very heavy traffic from shrimp boats and other commercial fishing vessels moving inland when the hurricane watch was issued. Over 160 boats went through the Freshwater Bayou Lock in southeastern Vermilion Parish on September 1st.

Evacuations were called for in Cameron Parish, where over 5,000 people evacuated. Vermilion, Iberia, and St. Mary Parishes had only voluntary evacuations. While only minimal damages were incurred due to the higher tides, hundreds of thousands of dollars, perhaps millions, were lost in offshore oil and commercial fishing.

<b>LAZ041&gt;045-051&gt;052-054&gt;055</b>	<b>Calcasieu - Jefferson Davis - Acadia - Lafayette - Upper St. Martin - Cameron - Vermilion - St. Mary - Lower St. Martin</b>									
	<b>09</b>	<b>0300CST</b>			<b>0</b>	<b>3</b>	<b>21M</b>			<b>Tropical Storm</b>
	<b>11</b>	<b>1800CST</b>								

Tropical Storm Frances was the third tropical system to affect southwest Louisiana in three weeks, and was by far the worst. Tides at Cameron were the highest since Hurricane Carla in 1961. Tornadoes and severe flooding were the 2 main weather disasters.

In Cameron Parish, Highway 82 was closed between Holly Beach and Constance Beach for 3 days due to high water. Sections of 82

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## LOUISIANA, Southwest

between Holly Beach and Cameron, and around the Grand Chenier area were also closed. At Constance Beach, ten camps were heavily damaged, three of which were completely washed away. At Holly Beach, 2 feet of sand piled up along the coast. In Cameron, nearly every home and business on Main Street had water enter them. In Hackberry and Grand Lake, many homes were flooded due to high water from the Calcasieu River and excessive rain. Total damages in Cameron Parish was in excess of 10 million dollars.

In Calcasieu Parish, flooding from the Calcasieu River caused over 20 homes in the Deatonville area to report water in them. Several boat houses and camps along the lake in Lake Charles were also damaged. Significant flooding was also reported in the Carlyss area, and south of the Lake Charles Regional Airport.

In Jeff Davis Parish, the worst flooding occurred in Jennings, Lake Arthur and Welsh. A tornado also did damage west of Lake Arthur.

In Vermilion Parish, the same area that flooded in Hurricane Audrey in 1957 was flooded again. The worst hit areas were Pecan Island, Forked Island, and Intracoastal City, where many homes and businesses had water enter them. Over ten inches of rain compounded the problems.

In Acadia and Evangeline Parishes, two tornadoes caused extensive damage due to hitting two schools. Flooding was also reported across southern sections of Acadia Parish, along Bayou Queue de Tortue.

In Lafayette Parish, two tornadoes caused damages to mobile homes.

In Iberia Parish, the town of Delcambre received extensive damage from flooding of the Delcambre Canal, which empties into the Gulf. Water levels in the canal reached the bottom of the bridge over Highway 14. Seven to nine roads were closed due to high water.

In St. Mary Parish, Burns Point and Cypremort Point recorded flooding that caused some damage to homes and businesses. Water was as deep as 3 to 4 feet deep in places. This caused several road closures.

### Jefferson Davis Parish 4 W Lake Arthur

11	0955CST	1	10	0	0	75K	Tornado (F1)
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A small tornado associated with an outer rainband of Tropical Storm Frances touched down west of Lake Arthur. One home had several windows blown out and a wall damaged, and a camp next door was completely destroyed. Debris from the camp was strewn across a field for over a half mile.

### Calcasieu Parish Lake Charles

11	1300CST 1600CST			0	0	100K	Flood
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Major flooding occurred in downtown Lake Charles when up to 5 inches of rain fell across the city in less than two hours. Nearly every road was flooded with six inches to 2 feet of water over them, and vehicles driving on the roads caused homes and businesses to flood when waves from the deep water crashed into the buildings.

### Cameron Parish Grand Lake

11	1300CST 1600CST			0	0	100K	Flood
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4 to 6 inches of rain caused flooding of over 20 homes in the Grand Lake area. Several streets had over a foot of water over them.

### Acadia Parish Midland

11	1618CST	2	10	0	2	5M	Tornado (F0)
----	---------	---	----	---	---	----	--------------

A tornado associated with an outer rainband of Tropical Storm Frances moved north to northwest across the community of Midland, doing extensive damage to the high school. The gymnasium, cafeteria, and library were the worst hit. Three outbuildings were also destroyed on school grounds. Twelve homes in Midland received damage as the tornado passed through town, two of which were destroyed. Several people at the school took refuge in the gymnasium, and flying debris slightly injured two of them.

### Evangeline Parish Basile

11	1656CST	5	20	0	3	2M	Tornado (F1)
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The same storm that hit Midland in Acadia Parish developed another tornado, and touched down in Basile on the Acadia/Evangeline Parish line. The worst hit area was the high school, where the middle school wing was completely destroyed. A total of 27 homes and businesses received damage in Basile, of which 15 were considered destroyed or received major damage. The 3 minor injuries resulted from cuts and bumps from flying debris during the tornado.

### Allen Parish 5 S Oakdale

11	1715CST	1	10	0	0	10K	Tornado (F0)
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The same storm system that caused tornadoes in Acadia and Evangeline Parishes produced a small tornado south of Oakdale, where trees and power lines were blown down across Highway 165.



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## LOUISIANA, Southwest

### **St. Landry Parish**

#### **Cankton**

**11 2200CST 0 0 100K Flood**  
**12 0600CST**

Heavy rain associated with TS Frances caused several roads to flood in St. Landry Parish. The worst hit areas were Cankton and Opelousas, where several homes and businesses had water enter them.

### **Lafayette Parish**

#### **2 E Youngsville**

**11 2230CST 1 10 0 0 100K Tornado (F0)**

A tornado on an outer rainband of Tropical Storm Frances damaged 12 homes near Youngsville, six of which were considered major. No injuries were reported.

### **St. Landry Parish**

#### **Opelousas**

**11 2300CST 1 10 0 0 100K Tornado (F0)**

A small tornado associated with TS Frances toppled trees and ripped roofs off several homes and businesses in Opelousas. No injuries were reported.

### **Allen Parish**

#### **4 NW Oberlin**

**12 0738CST 1 10 0 0 10K Tornado (F0)**

A small tornado associated with the remnants of Tropical Storm Frances touched down in a wooded area northwest of Oberlin.

### **Vermilion Parish**

#### **Perry**

**12 0800CST 1 10 0 0 20K Tornado (F0)**

A small tornado touched down near Perry, resulting in minor damage to some homes.

### **Lafayette Parish**

#### **Lafayette**

**12 0816CST 1 10 0 0 50K Tornado (F0)**

A small tornado associated with the remnants of TS Frances produced roof damage and trees down in western sections of Lafayette.

### **Rapides Parish**

#### **5 W Alexandria**

**12 1217CST 1 10 0 0 10K Tornado (F0)**

A small tornado associated with the remnants of Tropical Storm Frances blew down some trees on Highway 28 west of Alexandria.

### **Beauregard Parish**

#### **De Ridder**

**13 1000CST 0 0 50K Flood**  
**1600CST**

Between 10 and 15 inches of rain in three days resulted in flooding of area roadways across Beauregard Parish.

### **LAZ051>054**

#### **Cameron - Vermilion - Iberia - St. Mary**

**17 1500CST 0 0 Tropical Storm**  
**20 0300CST**

Tropical Storm Hermine was the 4th tropical system to affect southwest Louisiana in a month. Winds never recorded a gust higher than 25 mph, and tides only ran up to 3.5 ft. No evacuations were called for, and damage was minimal. Flooding was still ongoing in the marshes of Cameron, Vermilion, and St. Mary Parishes due to TS Frances.

### **LAZ051>054**

#### **Cameron - Vermilion - Iberia - St. Mary**

**26 0900CST 0 0 Hurricane**  
**27 2100CST**

Hurricane Georges was the fifth tropical system to threaten southwest Louisiana in five weeks. Effects were minimal since Georges turned away from the region, as winds and tides were only slightly above normal.

The most significant impact on southwest Louisiana was the evacuation of southeast Louisiana, including the New Orleans area. Thousands of people from New Orleans flooded the highways, and every motel from Lake Charles to Lafayette was booked during the threat of the hurricane. Shelters were opened in Lake Charles and Jennings to relieve the stress of the roadways for New Orleans evacuees.

## MAINE

NOT RECEIVED.

## MARYLAND, Central

### **MDZ009>010-**

### **013>014-016>018**

#### **Montgomery - Howard - Prince Georges - Anne Arundel - Charles - St. Mary'S - Calvert**

**01 0000EST 0 0 10.0M Drought**  
**30 2359EST**

High pressure was the dominant weather feature across Maryland during the month of September. This brought a second straight month of mainly dry weather, aggravating the already present agricultural drought. Only 1.27 inches of rain fell at BWI airport in September, 2.14 inches below normal for the month. Other monthly rainfall totals from Southern Maryland include Anne Arundel County at 1.1 inches, Charles County at 0.9 inches, Calvert County at 1.0 inches, Prince Georges County at 1.1 inches, and St. Mary's County at 0.9 inches.

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>MARYLAND, Central</u></b>									
The lack of rainfall significantly reduced crop yields. Anne Arundel, Calvert, Charles, Prince Georges, and St. Mary's Counties applied for agricultural disaster relief on the 23rd of September. Overall, the tobacco crop was the hardest hit as several fields reported crops in poor condition. Charles and St. Mary's Counties expected a 40% decrease in corn crop yield. The state estimated a loss of 60% of both corn and soybean yields in other drought stricken areas. 50% of pasture land in Maryland was reported in poor condition during the month, and the drought has created poor planting conditions for late season crops such as wheat, rye, and barley.									
<b>Montgomery County</b> <b>Dawsonville</b>	<b>17</b>	<b>1720EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
Scattered thunderstorms moved through Northern Maryland during the evening and produced strong winds. Winds from the storm knocked trees down on power lines in Dawsonville at 6:20 PM EDT.									
<b>Carroll County</b> <b>Westminster</b>	<b>21</b>	<b>1818EST</b>			<b>1</b>	<b>1</b>			<b>Lightning</b>
A single bolt of lightning several miles ahead of a thunderstorm struck a tree during a family gathering in Westminster at 7:18 PM EDT. Two persons playing horseshoes six feet away from the tree were hit by the stroke. One man was injured, and the second, a 28 year old man, was killed. M28UT									
<b><u>MARYLAND, Northeast</u></b>									
NOT RECEIVED.									
<b><u>MARYLAND, South</u></b>									
NONE REPORTED.									
<b><u>MARYLAND, West</u></b>									
<b>Garrett County</b> <b>3 N Friendsville</b>	<b>07</b>	<b>1840EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
Thunderstorm winds downed several trees onto Friendsville Road.									
<b><u>MASSACHUSETTS, Central and East</u></b>									
<b>Hampshire County</b> <b>Pelham</b>	<b>02</b>	<b>1946EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
Thunderstorm winds knocked down three trees and some power lines in Pelham, as reported by the local police.									
<b>Franklin County</b> <b>Greenfield</b>	<b>07</b>	<b>0305EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
An early morning severe thunderstorm downed at least two trees in Greenfield as reported by the local police.									
<b>Essex County</b> <b>Salisbury</b>	<b>07</b>	<b>0430EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Essex County</b> <b>Newburyport</b>	<b>07</b>	<b>0440EST</b> <b>0445EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
An early morning severe thunderstorm swept across parts of Essex County. Telephone poles were reported snapped in half and trees and wires downed in Newburyport as reported by local police. More than 50 homes lost power. Dime size hail was reported in neighboring Salisbury.									
<b>Barnstable County</b> <b>Hyannis Arpt</b>	<b>09</b>	<b>1545EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Four funnel clouds were observed from the control tower at Hyannis Municipal Airport. None extended beyond one third of the way down from the base of the clouds.									
<b>Nantucket County</b> <b>Nantucket</b>	<b>09</b>	<b>1550EST</b> <b>1600EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
Funnel clouds were reported by pilots and also witnessed by one person on the ground. The funnels were approximately 9 miles south of Nantucket Island.									
<b>Middlesex County</b> <b>Sudbury</b>	<b>15</b>	<b>1725EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
<b>Suffolk County</b> <b>(Bos)Logan Intl Arpt</b>	<b>15</b>	<b>1751EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G54)</b>
A severe thunderstorm brought damaging winds to a part of Sudbury in Middlesex County. About 20 trees were uprooted, some about 80 feet tall. Less than half an hour later, a severe thunderstorm in Suffolk County produced a wind gust to 63 mph at Logan International Airport. There were no reports of damage.									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998	Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops		

## MASSACHUSETTS, Central and East

### **Hampden County**

Westfield to Southwick	15	2330EST 2345EST			0	0				Thunderstorm Wind (G50)
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Trees and wires were reported blown down by thunderstorm winds in Westfield and Southwick in Hampden County.

### **Barnstable County**

Falmouth	22	0300EST 1800EST			0	0				Heavy Rain
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### **Hampden County**

Springfield	22	0300EST 1800EST			0	0				Heavy Rain
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### **Middlesex County**

Hopkinton	22	0300EST 1800EST			0	0				Heavy Rain
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### **Plymouth County**

Plymouth	22	0300EST 1800EST			0	0				Heavy Rain
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Rain began during the early morning hours and became heavy at times along with a few thunderstorms. A slow moving cold front extended across southeast Massachusetts and rainfall was enhanced by the remnants of Tropical Storm Hermine as it moved across the offshore waters. There were spotty reports of heavy rainfall from the Connecticut Valley to Cape Cod. A total of 3.17 inches fell at Springfield and 3.00 inches at Ayer. Hopkinton reported 2.75 inches. The maximum amount reported was 4.13 inches at Plymouth, while Falmouth had 2.37 inches. Other places reported less than two inches.

### **MAZ015>016**

#### **Suffolk - Eastern Norfolk**

	27	1250EST 1350EST			0	0				Record Heat
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The mercury soared to 86 degrees at Logan International Airport in Boston equalling the record for the date set in 1933. At the Blue Hill Observatory in Milton, the thermometer rose to 84 degrees breaking the record high for the date of 82 degrees set in 1908.

## MASSACHUSETTS, West

### **Berkshire County**

Adams	07	0240EST			0	0	10K			Thunderstorm Wind
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A derecho ahead of a strong cold front, which had moved east from southern Ontario across New York, weakened considerably as it moved into western Massachusetts during the predawn hours. The derecho still produced wind strong enough to down large limbs in Adams.

## MICHIGAN, East

### **Livingston County**

4 N Howell to Howell	07	0004EST 0015EST			0	0				Hail (1.00)
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### **Livingston County**

Howell	07	0015EST			0	0				Thunderstorm Wind (G50)
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### **Livingston County**

Brighton	07	0025EST			0	0				Hail (0.75)
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### **Monroe County**

Monroe	07	0330EST			0	0				Thunderstorm Wind (G50)
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A strong cold front was moving south across lower Michigan. A squall line developed along the front, and wind gusts of 40 to 50 mph were common with this line of thunderstorms. One cell in Livingston County became much more potent than the others, producing numerous reports of dime to quarter sized hail in and around Howell. A spotter also reported large limbs downed in Howell. The same storm produced dime sized hail in Brighton. Later in the morning, another storm in the line downed large tree limbs in Monroe.

### **Bay County**

Bentley	26	0620EST			0	0				Hail (1.75)
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### **Huron County**

3.5 NE Caseville	26	0715EST			0	0				Hail (0.75)
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A number of severe thunderstorms developed in the early morning hours in northern and central lower Michigan. The southernmost severe storm produced golfball sized hail in Bentley. This storm weakened as it moved east across Saginaw Bay, but was still potent enough to produce dime sized hail in Albert E Sleeper State Park.

## MICHIGAN, Extreme Southwest

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>MICHIGAN, North</u></b>									
<b>Mackinac County</b> <b>St Ignace</b>	<b>01</b>	<b>1937EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
			Hail briefly covered the ground.						
<b>Presque Isle County</b> <b>7 NW Rogers City</b>	<b>07</b>	<b>1338EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
			Gust of 60 mph reported at the 40 mile Point Lighthouse.						
<b>Manistee County</b> <b>Bear Lake</b>	<b>26</b>	<b>0445EST</b>			<b>0</b>	<b>0</b>	<b>35K</b>		<b>Hail (2.00)</b>
			Hail up to 2.00 inches in diameter severely damaged 2 apple orchards. Around 15,000 bushels of apples were destroyed with an estimated monetary loss of \$35,000.						
<b>Gladwin County</b> <b>Gladwin</b>	<b>26</b>	<b>0600EST</b>			<b>0</b>	<b>0</b>			<b>Hail (2.00)</b>
<b>Gladwin County</b> <b>8 N Gladwin</b>	<b>26</b>	<b>0600EST</b>			<b>0</b>	<b>0</b>			<b>Hail (2.50)</b>
<b>Manistee County</b> <b>Wellston</b>	<b>26</b>	<b>0605EST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.25)</b>
<b>Arenac County</b> <b>Sterling</b>	<b>26</b>	<b>0630EST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
<b>Arenac County</b> <b>2 SE Sterling</b>	<b>26</b>	<b>0630EST</b>			<b>0</b>	<b>0</b>			<b>Hail (3.50)</b>
			Large hail damaged crops and injured some livestock at area farms. Some trees were nearly stripped of leaves. Several homes suffered damage to siding...roofs and broken windows. Several satellite dishes were also destroyed. Cars and campers were dented to varying degrees with many broken windows.						
<b>Iosco County</b> <b>East Tawas</b>	<b>26</b>	<b>0755EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G55)</b>
			Several trees of up to 12 - 24 inches in diameter were toppled across the city.						
<b>Charlevoix County</b> <b>East Jordan</b>	<b>26</b>	<b>1152EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G61)</b>
			Numerous trees snapped off and/or uprooted around the intersection of M-66 and M-32. Many powerlines also down.						
<b>Charlevoix County</b> <b>Boyne Falls</b>	<b>26</b>	<b>1158EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G61)</b>
			Trees uprooted and/or snapped off across the city.						
<b>Antrim County</b> <b>7 NE Alba</b>	<b>26</b>	<b>1200EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G70)</b>
<b>Otsego County</b> <b>Gaylord</b>	<b>26</b>	<b>1215EST</b>			<b>0</b>	<b>15</b>	<b>12M</b>		<b>Tstm Wind/Hail</b>

A fast moving thunderstorm complex caused extensive damage across northwest Otsego county during the early afternoon. The storm entered the county near Elmira around 1:00 pm...striking Gaylord around 1:15 PM...then exiting the county around 1:30 PM. The most concentrated damage occurred in a roughly 2 mile wide and 12 mile long path centered along the M-32 corridor from Elmira...through Gaylord...to the Treetops-Sylvan Resort 2 miles east of Gaylord. Less extensive damage occurred outside this corridor.

The damage was caused by a combination of straight-line winds with embedded microbursts. Reports from witnesses indicated that sustained winds of 60 - 80 mph persisted for several minutes. Based on damage surveys...localized wind gusts of 100 - 110 mph accompanied some of the microbursts.

Mobile home parks...housing subdivisions and golf courses along the main damage corridor west of Gaylord received varying amounts of damage. The storm then struck Gaylord causing extensive damage. Along the M-32 business corridor most pole mounted signs/marquees were toppled...bent or wrapped around the poles. Many billboards were also knocked over...some falling onto vehicles and causing varying amounts of damage. Several gas pumps were also blown over. A camper being towed was blown off M-32 just west of town and destroyed.

The La Seniorita restaurant had a large portion of its roof torn off and a large shed blown over. Many businesses along the M-32 corridor received varying amounts of damage. The most extensive damage occurred at the Norandex Building Supply Company where a large cinder block warehouse was largely destroyed. As its walls collapsed...the metal roof and steel trusses were torn off. The roof...steel trusses and large chunks of cinder block debris were blown approximately 350 yards into the Gaylord High School causing damage to the front of the building.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## MICHIGAN, North

A covered walkway at the front of the school was partially collapsed as it was struck by debris from the building supply warehouse. The strong winds and flying debris also damaged the roof and shattered many windows at the High School. Most lightposts in the parking lot of the school were toppled or badly bent. At the Intermediate School...roof damage and many shattered windows were also reported. In addition...at the Intermediate Schools athletic field the press box was toppled onto the bleachers. The North Ohi o Elementary School lost 2/3 of its gymnasium roof and also suffered broken windows. As a result of the damage...Gaylord Area schools were closed for three days in the wake of the storm.

Elsewhere in Gaylord...the County Courthouse lost half its roof and a communication tower was toppled. Many homes and businesses suffered varying amounts of damage due to the strong winds...flying debris and falling trees. Falling trees damaged many homes and vehicles and also helped down many powerlines resulting in power outages. Several streets remained blocked by fallen trees for nearly 24 hours. Tens of thousands of trees across the county were snapped off and/or uprooted. Falling trees at the Fairview Cemetary damaged or toppled many headstones. Nearly 4000 trees were snapped off and/or uprooted at the Treetops-Sylvan Resort alone. Several buildings at the resort lost portions of roofs and hail up to 2.00 inches in diameter also caused some damage.

A curfew was imposed in Gaylord in the wake of the storm and the Govenor declared Gaylord a disaster area. The National Guard was called in for a week following the storm to assist in the clean up. Estimated damage from the storm is around \$12,000,000. The storm destroyed 47 homes and 2 businesses... caused major damage to 679 homes and 8 businesses with 92 homes and 65 businesses suffering minor damage. In addition...2 public buildings were destroyed and 5 damaged. Several state and county structures also received varying amounts of damage. Approximately 15 people received injuries...mostly minor...as a direct result of the storm. Most of the injuries were caused by flying debris.

### Otsego County Vanderbilt

<b>26</b>	<b>1215EST</b>	<b>0</b>	<b>0</b>	<b>Tstm Wind/Hail</b>
Many trees snapped off and /or uprooted. Strong winds and flying debris shattered numerous windows. Hail up to 1.00 inch in diameter also reported.				

### Montmorency County Hillman

<b>26</b>	<b>1255EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G65)</b>
Numerous trees of varying sizes snapped off and/or uprooted across the area.				

### Alpena County Lachine

<b>26</b>	<b>1304EST</b>	<b>0</b>	<b>0</b>	<b>Hail (1.00)</b>
Also received scattered reports of trees snapped off and/or uprooted from across the county.				

### Presque Isle County Posen

<b>26</b>	<b>1307EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G60)</b>
Trees snapped off and/or uprooted across the area. Some powerlines also down.				

### Charlevoix County 7 S St James

<b>26</b>	<b>2000EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G56)</b>
Numerous trees uprooted on southern portion of Beaver Island.				

### Emmet County Pellston

<b>26</b>	<b>2032EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
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### Cheboygan County Burt Lake

<b>26</b>	<b>2035EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Several trees toppled north of M-68.				

### Benzie County Countywide

<b>27</b>	<b>0005EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Scattered reports of trees uprooted and/or snapped off countywide.				

### Grand Traverse County Countywide

<b>27</b>	<b>0027EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Scattered reports of trees snapped off and/or uprooted countywide.				

### Kalkaska County 13 NE Kalkaska

<b>27</b>	<b>0100EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Several trees snapped off and/or uprooted.				

### Crawford County Frederic

<b>27</b>	<b>0108EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Numerous trees snapped off and/or uprooted. Some powerlines down.				

### Crawford County 5 SE Frederic

<b>27</b>	<b>0110EST</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind (G52)</b>
Trees snapped off and/or uprooted near CR-612 and Sherman Road.				

# Storm Data and Unusual Weather Phenomena

September 1998

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<u><b>MICHIGAN, North</b></u>									
<b>Oscoda County</b> Mio	27	0130EST			0	0			Thunderstorm Wind (G52)
Trees snapped off and/or uprooted. Some powerlines also down.									
<b>Alcona County</b> Lincoln	27	0205EST			0	0			Thunderstorm Wind (G52)
Numerous trees snapped off and/or uprooted. Many powerlines down.									
<u><b>MICHIGAN, Upper</b></u>									
<b>Menominee County</b> 1 N Menominee	01	1533CST 1550CST			0	0			Thunderstorm Wind (G55)
30 inch diameter... 50 ft tall tree down.									
<b>Menominee County</b> Birch Creek	01	1537CST			0	0			Hail (1.00)
1 inch hail									
<u><b>MICHIGAN, West</b></u>									
NOT RECEIVED.									
<u><b>MINNESOTA, Central and South Central</b></u>									
<b>Meeker County</b> Darwin	19	1452CST			0	0			Hail (1.75)
<b>Wright County</b> 3 S Howard Lake	19	1540CST			0	0			Thunderstorm Wind (G60)
Trees and power lines down. Estimated windspeed.									
<b>Wright County</b> 3 W Annandale	19	1545CST			0	0			Hail (1.00)
<b>Wright County</b> 3 W Annandale	19	1545CST			0	0			Thunderstorm Wind (G61)
Windows blown in.									
<b>Todd County</b> 6 W Long Prairie	25	2140CST			0	0			Hail (0.88)
<b>Todd County</b> Long Prairie	25	2146CST			0	0			Hail (1.75)
<b>Todd County</b> Long Prairie	25	2149CST			0	0			Hail (1.00)
<b>Todd County</b> Long Prairie	25	2150CST			0	0			Hail (1.75)
Many home and vehicle windows broken on the north side of the city.									
<b>Todd County</b> 6 N Grey Eagle	25	2155CST			0	0			Thunderstorm Wind (G55)
12 large trees blown down. Trailer homes damaged. Docks destroyed.									
<b>Morrison County</b> 1.5 NW Bowlus	25	2215CST			0	0			Thunderstorm Wind (G65)
Farmstead buildings blown down. Mobile home destroyed. Estimated windspeed.									
<b>Todd County</b> Grey Eagle	25	2215CST			0	0			Thunderstorm Wind (G50)
Trees blown down. Several roofs blown off. Estimated windspeed.									
<b>Morrison County</b> 2 W Royalton	25	2239CST			0	0			Thunderstorm Wind (G55)
Shed destroyed. Roof damage. Estimated windspeed.									
<b>Morrison County</b> 3 SW Pierz	25	2240CST			0	0			Hail (2.00)
Windows shattered and buildings pockmarked. Hail size estimated.									
<b>Morrison County</b> Morrill	25	2248CST			0	0			Hail (1.75)
<b>Mille Lacs County</b> 10 N Milaca	25	2314CST			0	0			Hail (2.50)

# Storm Data and Unusual Weather Phenomena

September 1998

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>MINNESOTA, Central and South Central</u></b>									
<b>Kanabec County</b> <b>Mora</b>	25	2315CST			0	0			<b>Thunderstorm Wind (G50)</b>
Large tree blown down. Many windows shattered. Estimated windspeed.									
<b>Mille Lacs County</b> <b>5 N Milaca</b>	25	2315CST			0	0			<b>Hail (3.00)</b>
Roof damage to multiple farmsteads. Broken windows. At least 5 automobiles totalled. Many vehicles with hail damage.									
<b>Mille Lacs County</b> <b>4 N Isle</b>	25	2318CST			0	0			<b>Thunderstorm Wind (G65)</b>
Trees blown down at Sunset Bay resort. RV blown over. Boats tossed. Estimated windspeed.									
<b>Mille Lacs County</b> <b>.5 N Isle</b>	25	2318CST			0	0			<b>Thunderstorm Wind (G65)</b>
Dock damaged just north of Isle. Estimated windspeed.									
<b>Kanabec County</b> <b>3 S Grasston</b>	25	2320CST			0	0			<b>Thunderstorm Wind (G60)</b>
Sheds destroyed. Storage building at Bremix Concrete destroyed. Power poles and trees blown down. Portion of roof ripped off farmhouse. Estimated windspeed.									
<b>Todd County</b> <b>Staples</b>	25	2324CST			0	0			<b>Thunderstorm Wind (G68)</b>
Wind gust to 78 mph reported at Staples Municipal Airport, just to the north of Staples in Wadena County. Trees blown down in the city of Staples. Buildings damaged at farmstead on the northwest edge of the city. Roof torn off Stern Rubber Company. Rooftop heating and cooling units ripped off McKechnie Tool and Engineering.									
<b>Sibley County</b> <b>Gaylord</b>	28	1015CST			0	0			<b>Hail (1.00)</b>
<b>Yellow Medicine County</b> <b>6 S Clarkfield</b>	28	1515CST			0	0			<b>Hail (1.50)</b>
<b><u>MINNESOTA, Northeast</u></b>									
<b>Pine County</b> <b>5 W Rock Creek</b>	25	2342CST			0	0			<b>Hail (1.00)</b>
<b>Cass County</b> <b>Pillager</b>	25	2342CST			0	0			<b>Hail (1.00)</b>
<b>Crow Wing County</b> <b>Brainerd</b>	25	2346CST			0	0	1M		<b>Thunderstorm Wind (G78)</b>
Numerous roofs were damaged, and many trees and power lines were blown down. Power was out for three days in some areas. The wind speed was estimated by spotters as being between 80 and 100 mph.									
<b>Pine County</b> <b>2 N Pine City</b>	25	2350CST			0	0			<b>Hail (1.00)</b>
<b>Crow Wing County</b> <b>Crosby</b>	26	0003CST			0	0			<b>Hail (1.00)</b>
<b>Pine County</b> <b>Hinckley</b>	26	0120CST			0	0			<b>Thunderstorm Wind (G56)</b>
Trees and power lines were blown down. The wind speed was estimated by spotters at 65 mph. The strong winds overturned a recreational vehicle parked at a casino and damaged the roof on a nearby hotel.									
<b>Pine County</b> <b>Beroun</b>	26	0120CST			0	0			<b>Hail (1.75)</b>
The hail damaged windows, roofs, and siding.									
<b>Crow Wing County</b> <b>Nisswa</b>	26	0230CST			0	0			<b>Hail (1.75)</b>
<b>Pine County</b> <b>Nickerson</b>	28	2145CST			0	0			<b>Hail (0.88)</b>
<b><u>MINNESOTA, Northwest</u></b>									
<b>Wilkin County</b> <b>1 E Lawndale</b>	25	2200CST			0	0			<b>Hail (1.00)</b>
<b>Otter Tail County</b> <b>5 NW Pelican Rapids</b>	25	2215CST			0	0			<b>Hail (0.75)</b>

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>MINNESOTA, Northwest</b>									
<b>Otter Tail County</b>									
Amor	25	2230CST			0	0	20K		Thunderstorm Wind
			A barn was destroyed by the wind.						
<b>Otter Tail County</b>									
3 NW Basswood	25	2230CST			0	0	75K		Thunderstorm Wind
			A resort on Dead Lake was hit by the strong winds. Four cabins were damaged and a large propane tank was pushed off its foundation. A boat was picked up and thrown 3 cabins down, dragging the anchor.						
<b>Otter Tail County</b>									
Heinola	25	2245CST			0	0	20K		Thunderstorm Wind
			The wind tore up a trailer home, scattering the contents for a half a mile.						
<b>Otter Tail County</b>									
Ottertail	25	2245CST			0	0	2M		Thunderstorm Wind
			An 85,000 bushel grain bin was flattened against the Ottertail elevator. Another 90,000 bushel bin crumpled to the ground, and two other 45,000 bushel bins were damaged by the strong wind. Around the town, a storage shed was blown apart, a marine business was damaged, several irrigation systems were twisted, trees were uprooted, and many signs were damaged. A pontoon was picked up by the wind and thrown 150 feet into a spruce tree.						
<b>Otter Tail County</b>									
Perham	25	2245CST			0	0			Hail (1.00)
			Two inches of hail fell.						
<b>Otter Tail County</b>									
Perham	25	2245CST			0	0			Thunderstorm Wind (G52)
<b>Otter Tail County</b>									
5 S Perham	25	2245CST			0	0	10K		Thunderstorm Wind
			The Blue Horizon Ballroom lost part of its roof due to the wind.						
<b>Otter Tail County</b>									
Bluffton	25	2255CST			0	0	50K		Thunderstorm Wind
			In the Bluffton area, 5 miles of roads had to be reopened because of downed trees. Four barns were blown over and a tree fell on two cars.						
<b>Otter Tail County</b>									
2 N Ottertail	25	2255CST			0	0	0.50K		Thunderstorm Wind
			Several trees were blown down.						
<b>Otter Tail County</b>									
New York Mills	25	2300CST			0	0	4M		Thunderstorm Wind
			The strong winds hit New York Mills quite hard. 1,600 customers in the area lost power, with 50 power poles snapped in half. The city garage lost parts of its roof, as did the school gym and the school storage shed. A garage in the town was ripped in two, sending a portion of the roof into two vehicles parked two lots away. Numerous trees and signs were blown down.						
<b>Otter Tail County</b>									
New York Mills	25	2301CST			0	0			Hail (1.00)
			Some hail was still on the ground the next morning.						
<b>Wadena County</b>									
Sebek	25	2310CST			0	0			Hail (0.75)
<b>Wadena County</b>									
5 N Verndale	25	2310CST			0	3	500K		Thunderstorm Wind
			A trailer home rolled over in the wind, injuring two of the three occupants inside. Nearby, a man was injured when a 2x4 was blown through his kitchen window, hitting him in the side. Over 10 barns in the area were severely damaged.						
<b>Wadena County</b>									
Verndale	25	2310CST			0	0	10K		Thunderstorm Wind
			An office building and a storage shed sustained roof damage.						
<b>Wadena County</b>									
5 E Verndale	25	2310CST			0	0	50K		Thunderstorm Wind
			A woman and her three children escaped without injury when their house was hit with the strong winds. Several windows shattered and part of the roof blew off. A barn, silo, machine shed, and several trees were also destroyed.						
<b>Wadena County</b>									
Wadena	25	2310CST			0	0			Hail (1.00)
<b>Wadena County</b>									
Wadena	25	2310CST			0	0	250K		Thunderstorm Wind
			A roof from an adjacent building blew into the display vehicles at a car dealership and twisted around them. A church also lost its bell tower.						



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
		Character of Storm							

## MINNESOTA, Northwest

### **Otter Tail County**

New York Mills 26 0140CST 0 0 Hail (1.00)

## MINNESOTA, Southeast

NONE REPORTED.

## MINNESOTA, Southwest

NONE REPORTED.

## MINNESOTA, West

NONE REPORTED.

## MINNESOTA, West Central

NONE REPORTED.

## MISSISSIPPI, Central

### **Smith County**

Pineville 07 1830CST 0 0 20K Thunderstorm Wind

The roofs were blown off of three barns and several houses had slight roof damage. Numerous trees were uprooted.

MSZ048>052-  
054>058-062>066-  
072>074

Hinds - Rankin - Scott - Newton - Lauderdale - Copiah - Simpson - Smith - Jasper - Clarke - Lincoln -  
Lawrence - Jefferson Davis - Covington - Jones - Marion - Lamar - Forrest

27 1700CST 0 0 2.8M High Wind  
29 0700CST

Hurricane Georges made landfall on the Mississippi coast, near Oceans Springs, during the morning of Monday, September 28th. Sustained winds were 100 mph. It drifted slowly north across southeast Mississippi that day and weakened to tropical storm strength by late that afternoon. By Tuesday afternoon, the weakening tropical system had pushed into western Alabama. High winds associated with the storm reached well inland as wind gusts of 50 to 70 mph were common across southern portions of central Mississippi. Rainfall amounts were heavy with many stations reporting 5 to 8 inches. The combination of high winds and a rain-soaked ground led to many downed trees and power lines, particularly southeast of a Columbia to Laurel line where the strongest wind and heaviest rain coincided. In this area, the pecan crop was hit hard as high winds stripped many of the pecan trees before maturity. Areas to the north and west, and farther from the center of Georges, received lesser amounts of tree and power line damage. Overall, the hurricane cost Mississippi an estimated \$310 million in damages with the coast taking the biggest hit.

## MISSISSIPPI, North

NONE REPORTED.

## MISSISSIPPI, South

NOT RECEIVED.

## MISSISSIPPI, Southeast

MSZ067-075>076-  
078>079 Wayne - Perry - Greene - Stone - George

25 0900CST 0 0 72M Hurricane  
29 0900CST

Please see the narrative on Hurricane Georges under Alabama, Southwest, September 25-29, 1998.

### **Stone County Countywide**

28 0930CST 0 0 Flood  
29 0930CST

Heavy rains from Hurricane Georges caused widespread flooding around the county. Rainfall estimates across the county were between ten and twenty inches. Many roads had to be closed for several hours because of high water. Schools were closed for two to three days because of flooding on secondary roads. Several bridges around the county had to be closed until they could be checked for safety. Runoff from the heavy rains caused rivers and streams to rise in the county, but most stayed below dangerous levels and caused only minor flooding.

### **George County Countywide**

28 0930CST 0 0 Flood  
29 0930CST

Rainfall estimates from Hurricane Georges were between fifteen and eighteen inches across the county. The heavy rainfall caused several roads across the county to be closed due to high water. Schools were closed for two to three days because of flooded or washed out secondary roads. Several bridges were also closed due to undermining from the high water. The heavy rainfall caused

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
Character of Storm									

## MISSISSIPPI, Southeast

small streams to rise rapidly and a few homes were flooded by the high water. The heavy rains also caused river flooding across the county. Although nowhere near a record, both the Pascagoula and the Escatawpa rivers rose to near flood levels.

## MISSOURI, East

### MOZ063>064

#### St. Louis - St. Louis (C)

<b>04</b>	<b>1100CST</b>	<b>0</b>	<b>13</b>	<b>Excessive Heat</b>
<b>07</b>	<b>1700CST</b>			

High temperatures in the lower to middle 90s created one of the warmest Labor Day weekends in some time across the St. Louis area. 9 heat related injuries were reported in St. Louis County with 4 in the City of St. Louis.

### Audrain County Countywide

<b>17</b>	<b>1030CST</b>	<b>0</b>	<b>0</b>	<b>Flash Flood</b>
	<b>1330CST</b>			

Rainfall up to 4-5 inches caused flash flooding of numerous roads across Audrain County. Highway J east of Mexico had at least a foot of water on it at several locations. Highway 54 east of Mexico also had water close to 1 foot deep in places. Several gravel roads across the county suffered damage from flood water as well.

## MISSOURI, Lower

NONE REPORTED.

## MISSOURI, Northwest

### MOZ020

#### Buchanan

<b>01</b>	<b>0000CST</b>	<b>0</b>	<b>0</b>	<b>Flood</b>
<b>02</b>	<b>2359CST</b>			

Minor flooding occurred along the Platte river in Agency, MO at the beginning of September.

Platte River  
Agency, MO

Flood Stage	20 ft
Above Flood Stage	9/1 to 9/2
Crest	22.43 ft on 9/1

### Nodaway County Maryville

<b>01</b>	<b>0100CST</b>	<b>0</b>	<b>0</b>	<b>Hail (1.00)</b>
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One inch diameter hail was reported by the county sheriff's office during a severe thunderstorm in Maryville.

### Gentry County Stanberry

<b>01</b>	<b>0102CST</b>	<b>0</b>	<b>0</b>	<b>Hail (1.00)</b>
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The Gentry County Sheriff's Office reported one inch diameter hail in Stanberry during a severe thunderstorm.

### Nodaway County 2 E Barnard

<b>01</b>	<b>0155CST</b>	<b>0</b>	<b>0</b>	<b>Hail (0.75)</b>
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The Nodaway County Sheriff's Office reported dime-size hail 2 miles east of Barnard.

### MOZ029-031>032- 037>039-044-046-054

#### Clay - Carroll - Chariton - Jackson - Lafayette - Saline - Johnson - Cooper - Henry

<b>13</b>	<b>0000CST</b>	<b>0</b>	<b>0</b>	<b>Flood</b>
<b>21</b>	<b>2359CST</b>			

Minor to moderate flooding occurred during the middle part of September. The flooding was a result of the heavy rain associated with the remains of tropical Storm Frances. The flooding was more serious along Wakenda Creek at Carrollton, Missouri.

Blue River  
Blue Parkway, Kansas City, MO

Flood Stage	33 ft
Above Flood Stage	9/14
Crest	34.0 ft

Bannister Road, Kansas City, MO

Flood Stage	24 ft
Above Flood Stage	9/14
Crest	24.09 ft

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998	Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops		

## MISSOURI, Northwest

Big Creek  
Blairstown, MO

Flood Stage 20 ft  
Above Flood Stage 9/14 to 9/17  
Crest 25.2 ft on 9/14

South Grand River  
Urich, MO

Flood Stage 24 ft  
Above Flood Stage 9/14 to 9/17  
Crest 27.04 ft on 9/15

Blackwater River  
Valley City, MO

Flood Stage 22 ft  
above Flood Stage 9/14 to 9/16  
Crest 27.0 ft on 9/14

Blue Lick, MO

Flood Stage 24.0 ft  
Above Flood Stage 9/14 to 9/21  
Crest 34.52 ft on 9/17

Wakenda Creek  
Carrollton, MO

Flood Stage 20 ft  
Above Flood Stage 9/13 to 9/18  
Crest 24.5 ft on 9/15

Little Blue River  
Lake City, MO

Flood Stage 18 ft  
Above Flood Stage 9/14  
Crest 20.54 ft

Little Platte River  
Smithville, MO

Flood Stage 24 ft  
Above Flood Stage 9/14  
Crest 24.44 ft

Fishing River  
Mosby, MO

Flood Stage 18 ft  
Above Flood Stage 9/14  
Crest 24.6 ft

Grand River  
Sumner, MO

Flood Stage 26 ft  
Above Flood Stage 9/14 to 9/16  
Crest 30.54 ft on 9/15

Missouri River

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>MISSOURI, Northwest</u></b>									
			Waverly, MO						
			Flood Stage	20 ft					
			Above Flood Stage	9/15					
			Crest	20.19 ft					
			Miami, MO						
			Flood Stage	18 ft					
			Above Flood Stage	9/15					
			Crest	Estimated 19.2 ft					
			Boonville, MO						
			Flood Stage	21 ft					
			Above Flood Stage	9/15 to 9/16					
			Crest	21.15 ft on 9/16					
<b>MOZ054</b>			<b>Henry</b>						
	<b>21</b>	<b>0000CST</b>			<b>0</b>	<b>0</b>			<b>Flood</b>
	<b>25</b>	<b>2359CST</b>							
	Minor to moderate flooding occurred along the South Grand River in Urich, Missouri on September 21st through the September 25th as a result of thunderstorm rains.								
			South Grand River						
			Urich, MO						
			Flood Stage	24 ft					
			Above Flood Stage	9/21 to 9/25					
			Crest	25.84 ft on 9/21					
<b>Platte County</b>									
<b>Parkville to</b>	<b>28</b>	<b>2120CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Weatherby Lake</b>									
	The Platte County Sheriff's Office reported dime-size hail at Parkville and Weatherby Lake.								
<b>Clay County</b>									
<b>Liberty to</b>	<b>28</b>	<b>2141CST</b>			<b>0</b>	<b>0</b>			<b>Hail (2.00)</b>
<b>Excelsior Spgs</b>		<b>2215CST</b>							
	A severe thunderstorm dropped large hail over several sections of Clay County on the evening of September 28th. The Clay County Sheriff's Office reported two inch diameter hail in Excelsior Springs and golf ball-size hail at the intersection of Highways 291 and 169. In Liberty, police reported golf ball-size hail and the Kansas City fire Department reported dime-size hail at the intersection of 99th and Oak.								
<b>MOZ054</b>			<b>Henry</b>						
	<b>30</b>	<b>0000CST</b>			<b>0</b>	<b>0</b>			<b>Flood</b>
		<b>2359CST</b>							
	Minor to moderate flooding occurred along the South Grand river at Urich, Missouri at the end of September.								
			South Grand River						
			Urich, MO						
			Flood Stage	24 ft					
			Above Flood Stage	9/30					
			Crest	26.92 ft					
<b><u>MISSOURI, Southeast</u></b>									
<b>MOZ076-086&gt;087-100-109&gt;112-114</b>			<b>Perry - Bollinger - Cape Girardeau - Wayne - Butler - Stoddard - Scott - Mississippi - New Madrid</b>						
	<b>01</b>	<b>0001CST</b>			<b>0</b>	<b>0</b>			<b>Drought</b>
	<b>30</b>	<b>2359CST</b>							
	Little if any rainfall fell across parts of southeast Missouri from mid August through mid September. The mild drought came to an end when thunderstorms occurred on September 21, bringing over an inch of rain to Cape Girardeau. The dry weather had an adverse effect on the soybean crop and some late-planted corn. The lack of rainfall late in the summer was mitigated by one of the wettest springs on record.								

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>MISSOURI, Southwest</b>									
<b>Jasper County</b> Countywide	14	0600CST 1300CST			0	0			Flood
<b>Newton County</b> Countywide	14	0600CST 1300CST			0	0			Flood
<b>St. Clair County</b> Countywide	14	0600CST 1300CST			0	0			Flood
<b>Vernon County</b> Countywide	14	0600CST 1300CST			0	0			Flood
Rainfall amounts of 4 to 6 inches produced generally minor flooding of low lying roads and bridges.									
<b>Cedar County</b> 9 NE Stockton	29	0245CST			0	0	1K		Thunderstorm Wind
Thunderstorm winds blew down some small trees.									
<b>Vernon County</b> Montevallo	29	0254CST			0	0	1K		Thunderstorm Wind
Thunderstorm winds knocked down small trees in the Montevallo and Sheldon areas.									
<b>Polk County</b> Flemington	29	0320CST			0	0	1K		Thunderstorm Wind
Thunderstorm winds blew down trees in Flemington.									
<b>Pulaski County</b> Crocker	29	0400CST			0	0	1K		Thunderstorm Wind
Thunderstorm winds knocked down trees in Crocker.									
<b>Greene County</b> Springfield	29	0412CST			0	0	2K		Thunderstorm Wind
Thunderstorm winds knocked a few large tree limbs down in the southern portion of Springfield.									
<b>Webster County</b> 1 N Seymour	29	0500CST			0	0	0		Thunderstorm Wind
Thunderstorm winds knocked a few tree limbs just north of Seymour.									
<b>Texas County</b> 2 W Bucyrus	29	0505CST			0	0	0		Thunderstorm Wind
Thunderstorm winds knocked down a large tree near the intersection of Highways 17 and 38 west of Bucyrus.									
<b>Barton County</b> Liberal	30	0048CST			0	0	1K		Thunderstorm Wind (G60)
Thunderstorm winds estimated at 60 mph downed trees near Liberal.									
<b>Barton County</b> Lamar	30	0102CST			0	0	3K		Tstm Wind/Hail
A thunderstorm produced dime size hail and wind gusts estimated at 60 mph. Small trees and power lines were knocked down.									
<b>Barton County</b> Golden City	30	0125CST			0	0	15K		Thunderstorm Wind (G70)
Thunderstorm wind gusts estimated up to around 70 mph knocked down trees, power lines, and damaged some roofs.									
<b>Lawrence County</b> Mt Vernon	30	0210CST			0	0	3K		Thunderstorm Wind (G70)
Thunderstorm winds gusts estimated at around 70 mph blew down large trees and tree limbs in and around Mt. Vernon.									
<b>MONTANA, Central</b>									
<b>Cascade County</b> (Gfa)Malmstrom Afb	09	1304MST			0	0			Thunderstorm Wind (G54)
<b>Cascade County</b> Vaughn	09	1310MST			0	0	1K		Thunderstorm Wind (G60)
<b>Cascade County</b> 7 SE Armington	09	1335MST			0	0			Thunderstorm Wind (G66)
<b>Chouteau County</b> 11 N Carter	09	1350MST			0	0			Thunderstorm Wind (G61)

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>MONTANA, Central</u></b>									
<b>Chouteau County</b> 6 N Big Sandy	09	1434	MST		0	0			Thunderstorm Wind (G61)
<b>Hill County</b> (Hvr)Havre City-Co A	09	1504	MST		0	0			Thunderstorm Wind (G55)
<b>Meagher County</b> 13 NE White Sulphur Spgs	18	1350	MST		0	0			Hail (0.75)
<b><u>MONTANA, East</u></b>									
<b>Petroleum County</b> 35 NE Winnett	18	1730	MST		1	1			Lightning
	One man died after lightning struck him and a friend while the two were bow hunting. The two were hunting between Crooked Creek and Barrel Springs when a thunderstorm moved overhead. The two took cover under a tree. Lightning struck the pair knocking both unconscious. When the one man awoke he tried to revive his friend and then went for help. Help arrived in the remote area about two hours after the strike. The second man was pronounced dead at 9:50 p.m. M37UT								
<b>Prairie County</b> Terry	18	1915	MST		0	0			Hail (1.00)
<b>Prairie County</b> Terry	18	1930	MST		0	0			Hail (0.75)
<b><u>MONTANA, South</u></b>									
	NONE REPORTED.								
<b><u>MONTANA, West</u></b>									
<b>Silver Bow County</b> (Btm)Mooney Arpt But	09	1639	MST		0	0			Hail (0.75)
		1656	MST						
<b><u>NEBRASKA, Central</u></b>									
<b>Brown County</b> 14 SSW Johnstown	13	1520	CST		0	0			Thunderstorm Wind (G52)
<b>Custer County</b> 4 NW Sargent	25	1850	CST		0	0			Hail (0.75)
<b>Keya Paha County</b> 23 WNW Springview	25	2245	CST		0	0			Hail (0.75)
<b>Boyd County</b> 5 SSE Naper	28	1558	CST		0	0		5K	Hail (2.00)
	Hail damage to grassland.								
<b>Boyd County</b> 2 NW Lynch	28	1705	CST		0	0			Hail (0.75)
<b>Frontier County</b> 8 S Curtis	29	1330	CST		0	0			Hail (1.25)
<b><u>NEBRASKA, East</u></b>									
<b>Lancaster County</b> Panama	19	2000	CST		0	0			Thunderstorm Wind (G52)
<b>Sarpy County</b> 3 NE Gretna	19	2045	CST		0	0			Thunderstorm Wind (G54)
<b>Madison County</b> Norfolk	19	2056	CST		0	0			Hail (1.25)
<b>Douglas County</b> Omaha	19	2120	CST		0	0	20K		Lightning
	Lightning strike caused extensive fire damage to a house.								
<b>Richardson County</b> 3 NE Humboldt	19	2220	CST		0	0	8K		Thunderstorm Wind (G60)
	Thunderstorm winds took the roof off of a 150 ft machine shed.								
<b>Pawnee County</b> 1 SE Du Bois	20	1925	CST		0	0			Hail (0.75)
<b>Richardson County</b> 10 S Humboldt	20	1930	CST		0	0			Hail (0.75)

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>NEBRASKA, East</u></b>									
<b>Gage County</b> 5 W Odell	20	2005CST			0	0			Hail (0.88)
<b>Boone County</b> 2 N Cedar Rapids	25	1810CST			0	0			Hail (0.75)
<b>Antelope County</b> 5 E Royal	25	1912CST			0	0			Hail (0.88)
<b>Antelope County</b> 2 SE Royal	25	1920CST			0	0			Hail (1.50)
<b>Cedar County</b> Hartington	25	1944CST			0	0			Hail (1.75)
<b>Knox County</b> Crofton	25	1955CST			0	0			Hail (1.00)
<b>Cedar County</b> 3 W Fordyce	25	1955CST			0	0			Hail (1.75)
<b>Knox County</b> 5 N Verdigre	28	1817CST			0	0			Hail (1.00)
<b>Knox County</b> Center	28	1850CST			0	0			Hail (1.00)
<b><u>NEBRASKA, Extreme Northeast</u></b>									
<b>NEZ013&gt;014</b>	<b>Dixon - Dakota</b>								
	25	2000CST			0	0	10K		High Wind (G50)
		2100CST							
High winds with a heat burst damaged trees and a few power lines. The winds were accompanied by rapid warming with temperatures climbing into the 90s in the late evening.									
<b><u>NEBRASKA, Extreme Southwest</u></b>									
NONE REPORTED.									
<b><u>NEBRASKA, South Central</u></b>									
<b>Webster County</b> 6 SW Bladen	19	1655CST			0	0	0	50K	Hail (0.75)
<b>Hall County</b> Cairo	19	2035CST			0	0	0	100K	Hail (1.00)
<b>Thayer County</b> Hebron	19	2300CST			0	0	500K	0	Lightning
A bolt of lightning struck a downtown Hebron business around midnight. The resulting fire totally destroyed the farm implement dealership. All contents of the building were destroyed and damage was estimated at a half million dollars.									
<b>Phelps County</b> 3 NE Westmark	25	1615CST			0	0	30K	200K	Thunderstorm Wind (G75)
<b>Buffalo County</b> Elm Creek	25	1623CST			0	5	2.4M	2M	Thunderstorm Wind (G87)
<b>Buffalo County</b> 2 W Pleasanton	25	1647CST			0	0	50K	500K	Hail (1.75)
<b>Sherman County</b> 2 E Loup City	25	1700CST			0	0	0	0	Hail (0.75)
<b>Howard County</b> Dannebrog	25	1715CST			0	0	25K	250K	Hail (0.75)
<b>Greeley County</b> Wolbach	25	1755CST			0	0	0	100K	Hail (0.75)
A devastating thunderstorm packing hail and high winds hammered the town of Elm Creek shortly before 6 pm. The severe storm dumped 1.75 inch hail driven by 100 mph winds. Nearly every home in town sustained some damage in the form on broken windows, damaged siding or extensive tree damage. Two semi-trailer trucks were blown off Interstate 80. One person received minor injuries there. Many windshields were taken by the storm and grain bins were also damaged Some people estimated the hail and wind lasted for 12 minutes. Three other minor injuries were reported due to flying glass.									
Another storm deposited dime size hail in Dannebrog at 615 pm. Just a short time later, this storm blew out some windows north of town. Minor crop damage was also found in Howard county.									

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>NEBRASKA, South Central</u></b>									
<b>Gosper County</b> 15 SE Elwood	29	1350CST			0	0	0	50K	Hail (0.75)
<b><u>NEBRASKA, West</u></b>									
									NONE REPORTED.
<b><u>NEVADA, North</u></b>									
									NONE REPORTED.
<b><u>NEVADA, South</u></b>									
<b>Lincoln County</b> 6 E Pioche	05	1449PST	0.1	20	0	0			<b>Tornado (F0)</b>
									The Lincoln County Sheriff reported a brief touchdown of a weak tornado in an open field between Pioche and Echo Canyon State Park. The tornado disturbed some irrigation pipes, but no significant damage was reported.
<b>Clark County</b> Las Vegas	08	1305PST			0	0	3K		<b>Thunderstorm Wind</b>
<b>Clark County</b> Henderson	08	1310PST			0	0	2K		<b>Thunderstorm Wind</b>
<b>Clark County</b> Henderson	08	1320PST			0	0	10K		<b>Flash Flood</b>
<b>Clark County</b> Las Vegas	08	1353PST			0	0			<b>Flash Flood</b>
									A severe thunderstorm rapidly developed over the south end of the Las Vegas Valley and moved north focusing damaging winds and heavy rain mainly across the eastern half of the metro area. High winds toppled trees in Henderson and downed power lines which blocked both north and southbound lanes of Interstate 15 for about 40 minutes just north of the Warm Springs overpass. Rainfall amounts of 0.75 to 1.20 inches fell in less than 30 minutes in many locations producing widespread street flooding and full washes. Flooding also caused minor damage to some homes in Henderson.
<b>Clark County</b> Moapa	08	1430PST			0	0	10K		<b>Flash Flood</b>
<b>Clark County</b> Moapa	08	1430PST			0	0	140K		<b>Thunderstorm Wind</b>
									Approximately 15 homes and trailers were severely damaged by thunderstorm winds estimated at 80 to 90 mph. Flash flooding also occurred and caused some roadway erosion.
<b>Clark County</b> Bunkerville	08	1500PST			0	0	30K		<b>Flash Flood</b>
<b>Clark County</b> Bunkerville	08	1500PST			0	0	20K		<b>Thunderstorm Wind</b>
									Thunderstorm winds caused damage to six homes...including one roof blown away. Also, heavy rain showers produced flash flooding which swept mud and water through several homes.
<b>Clark County</b> Henderson	08	1800PST			0	0			<b>Thunderstorm Wind (G70)</b>
									Wind measuring equipment at the Henderson Executive Airport recorded wind gusts of at least 80 mph. Air traffic control personnel temporarily evacuated the airport tower, but no damage was reported.
<b>Clark County</b> Searchlight	09	1300PST			0	0			<b>Thunderstorm Wind (G52)</b>
									A weather spotter estimated thunderstorm wind gusts of 60 mph along with six-tenths (0.60) of an inch of rain in less than 30 minutes.
<b>Clark County</b> Mesquite	09	1400PST			0	0			<b>Thunderstorm Wind (G52)</b>
									Thunderstorm wind gusts of 60 mph were reported by a weather spotter in Mesquite.
<b>Clark County</b> Searchlight	09	1430PST			0	0	5K		<b>Flash Flood</b>
									Heavy rain showers dropped nine-tenths (0.90) of an inch of rain within an hour. The runoff eroded roads and yards around Searchlight.
<b>Clark County</b> Boulder City	09	1440PST			0	0			<b>Thunderstorm Wind (G50)</b>
<b>Clark County</b> Las Vegas	09	1450PST			0	0	2K		<b>Thunderstorm Wind</b>



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>NEVADA, South</b>									
Thunderstorms moving north across the Las Vegas Valley produced 58 mph winds at the Boulder City airport and damaged some construction signs and roof tiles in the southwest part of Las Vegas.									
<b>Clark County Riverside</b>	<b>09</b>	<b>1545PST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
The Laughlin Fire Department reported wind gusts up to 58 mph from a nearby thunderstorm.									
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1043PST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1055PST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1105PST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1114PST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
<b>Clark County Nellis Afb</b>	<b>11</b>	<b>1131PST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1132PST 1730PST</b>			<b>0</b>	<b>0</b>	<b>250K</b>		<b>Flash Flood</b>
<b>Clark County Henderson</b>	<b>11</b>	<b>1156PST</b>	<b>0.1</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>30K</b>		<b>Tornado (F0)</b>
<b>Clark County Nellis Afb</b>	<b>11</b>	<b>1200PST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
<b>Clark County Mead Lake</b>	<b>11</b>	<b>1224PST 1800PST</b>			<b>0</b>	<b>0</b>	<b>50K</b>		<b>Flash Flood</b>
<b>Clark County Las Vegas</b>	<b>11</b>	<b>1330PST</b>			<b>0</b>	<b>0</b>	<b>75K</b>		<b>Hail (0.75)</b>
Severe thunderstorms pounded the Las Vegas Valley and Lake Mead for a few hours producing golfball size hail, a small tornado and widespread flash flooding. Large hail began falling shortly before 11 am PST and numerous hail reports came in for the next couple hours with some episodes causing damage to several automobiles. A small tornado tore the roof off a Henderson warehouse and destroyed a large block wall at a service station a short distance away. Heavy rain fell mainly on the east side of the metro area with amounts up to 1.85 inches in a two hour period. As a result flash flooding filled streets and washes and trapped several motorists although no serious injuries occurred. The heavy rain damaged about one acre of the 750 acre Sunrise Landfill and carried significant amounts of debris into the Las Vegas wash. The Clark County School District activated the "shelter-in-place" policy for school children at approximately 30 schools around the area. Children were not bussed home until after flooding had subsided.									
<b>Lincoln County East Central Portion</b>	<b>11</b>	<b>1120PST 1635PST</b>			<b>0</b>	<b>0</b>			<b>Flash Flood</b>
A widespread flash flood event began with heavy rain in the vicinity of Panaca and Cathedral Gorge State Park. The Lincoln County Sheriff first reported flooding across the road in Cathedral Gorge at 11:20 am PST followed by washed out roads between Pioche and Echo Canyon State Park shortly after. Redeveloping thunderstorms produced upwards of 1.5 inches of rain within a couple hours causing major flash flooding around Panaca and also at Eagle Valley State Park during the afternoon. No significant reports of damage were received.									
<b>Clark County Mead Lake</b>	<b>11</b>	<b>1348PST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>Flash Flood</b>
<b>Clark County Moapa</b>	<b>11</b>	<b>1400PST</b>			<b>0</b>	<b>0</b>	<b>25K</b>		<b>Flash Flood</b>
<b>Clark County 6 SW Overton to Overton</b>	<b>11</b>	<b>1435PST</b>			<b>0</b>	<b>0</b>			<b>Flash Flood</b>
Heavy rain fell over the area from the north shore of Lake Mead to Moapa causing widespread flash flooding. Several sections of road were washed out between Echo Bay and Las Vegas Bay and the Valley of Fire State Park was forced to close due to road flooding both in and out of the park. In Moapa, a dairy farm suffered flood damage and volunteer firefighters narrowly rescued a man before his van was swept away and submerged by flood waters.									
<b>Clark County Moapa</b>	<b>12</b>	<b>0005PST 0600PST</b>			<b>0</b>	<b>0</b>	<b>500K</b>		<b>Flash Flood</b>

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## NEVADA, South

### **Clark County Overton**

**12 0030PST  
0600PST 0 0 100K Flash Flood**

Heavy rainfall over southeast Lincoln County and northeast Clark County produced major flash flooding in the Muddy River and California Wash which caused considerable damage to roads and homes in Moapa, Hidden Valley and Overton. A total of about 220 people had to be evacuated from the three communities and many homes suffered major flood damage. Flood waters in the Muddy river also completely washed out the Gubler Street bridge. No injuries were reported.

## NEVADA, West

### **Washoe County Steamboat**

**05 1501PST  
1510PST 0 0 0 Heavy Rain**

9 minute rainfall: 0.63 inches due to thunderstorm. Reported by Alert rain gauge at Bailey Creek.

### **Douglas County Gardnerville**

**05 1517PST  
1518PST 0 0 0 Flash Flood**

Mud covering one side of Fish Springs Road. Reported by Douglas County Sheriff.

### **Washoe County Sparks**

**05 1805PST  
1835PST 0 0 0 Urban/Sml Stream Fld**

30 minute rainfall resulting in 8 inches of water flowing through Sparks Rib Cook-Off booths along Pyramid Way and Victoria n Square. Minor flooding also reported along Rock Blvd, also in Sparks.

### **Washoe County Reno**

**05 1830PST  
1840PST 0 0 0 Urban/Sml Stream Fld**

10 minute rainfall in SW Reno: 0.20 inches due to thunderstorm resulting in minor street flooding and ponding on roads.

### **Washoe County Reno**

**07 1303PST  
1348PST 0 0 0 Heavy Rain**

45 minute rainfall: 0.71 inches from thunderstorm reported by spotter 5 miles north of Reno.

### **Washoe County Sutcliffe**

**09 1521PST  
1526PST 0 0 0 Heavy Rain**

0.33 inches of rain in 5 minutes reported by spotter near Pyramid Lake.

## NEW HAMPSHIRE, North and Central

NOT RECEIVED.

## NEW HAMPSHIRE, Southern

### **Cheshire County Chesterfield to Keene**

**07 0320EST  
0325EST 0 0 Thunderstorm Wind (G50)**

### **Cheshire County Stoddard**

**07 0325EST 0 0 Thunderstorm Wind (G50)**

### **Hillsborough County Peterborough**

**07 0335EST 0 0 Thunderstorm Wind (G50)**

### **Hillsborough County Manchester**

**07 0345EST 0 0 Thunderstorm Wind (G50)**

A line of early morning severe thunderstorms moved across southern New Hampshire sparking lightning fires and downing trees and power lines. Trees and wires were knocked down in Chesterfield, Keene, and Stoddard in Cheshire County and in Peterborough in Hillsborough County as reported by the local police. Several roads were blocked by fallen trees. In Manchester, several trees were blown down blocking one road, while one downed tree narrowly missed a house but knocked down a 20-foot section of stockade fence. A poolhouse was set afire by a lightning strike in New Boston, in Hillsborough County. About 7500 electric utility customers lost service during the storms in southern New Hampshire.

## NEW JERSEY, Northeast

### **Union County Central Portion**

**02 1840EST 0 0 Thunderstorm Wind (G52)**

### **Passaic County West Milford**

**07 1300EST 0 0 Hail (0.75)**

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>NEW JERSEY, Northeast</u></b>									
Essex County Millburn	07	1310EST			0	0			Hail (1.00)
Essex County Millburn to Newark	07	1310EST 1320EST			0	0			Thunderstorm Wind (G64)
Union County Linden Arpt to Rahway	07	1315EST 1320EST			0	0	3M		Thunderstorm Wind (G63)
Union County Mountainside to Roselle	07	1320EST			0	0			Hail (1.25)
Bergen County Bergenfield	07	1325EST			0	0			Thunderstorm Wind (G52)
Hudson County Union City	07	1325EST			0	0			Hail (1.75)
Passaic County Clifton	07	1327EST			0	0			Thunderstorm Wind (G52)
Union County Plainfield to Scotch Plains	07	1327EST	0.2	30	0	0	1.5M		Tornado (F0)
An F0 tornado touched down in a highly populated residential area from Northern Plainfield east across Southern Scotch Plains. Signs of rotation were evident in damage to trees and eyewitness reports included the sighting of funnel clouds. The Mayor of Plainfield estimated that the township lost at least 95 trees.									
Essex County Orange to Newark	07	1330EST			0	0			Thunderstorm Wind (G52)
Union County Clark	07	1335EST	0.2	50	0	0	550K		Tornado (F1)
An F1 tornado occurred across Northcentral Clark. There was significant damage to large trees. A narrow path of large trees were sheared off more than midway down their trunks near the Cali Center at 100 Walnut Avenue. The Mayor of Clark estimated that the township lost at least 150 trees. Based on radar signatures and eyewitness reports, wind gusts were estimated at 110 mph.									
Hudson County Harrison	07	1340EST			0	0			Thunderstorm Wind (G57)
An intense line of severe thunderstorms oriented from north to south developed during Labor Day afternoon ahead of a strong approaching cold front. As the storms moved east at 40 to 50 mph, they produced high winds, large hail, and isolated tornadoes. Wind gusts from 60 to 80 mph combined with hail up to 1.75 inches in diameter caused damage to houses (roofs and gutters), trees, and power lines across the region. The cost estimates of damage included above are preliminary figures submitted by the Union County Office of Emergency Management.									
In Essex County, the following peak wind gusts were reported: 74 mph at West Orange and 68 mph in Millburn. High winds downed trees in Newark.									
In Union County, the following peak wind gusts were reported: 72 mph in Roselle, 71 mph in Garwood, 70 mph in Mountainside, and 69 mph in Elizabeth. High winds caused a Tommy Hilfiger Blimp to break loose from its' mooring at Linden Airport. When it struck a power line, the blimp was destroyed. Officials said it may cost up to \$8M to fix. Small planes also toppled over at Linden Airport. A trailer was overturned in Linden. High winds also caused a tree to fall into and damage a house on Church Street in Rahway. Preliminary cost damage estimates for Rahway range from \$700K to \$1M based on newspaper articles. The combination of high winds and large hail damaged roofs and gutters in Roselle. Large hail also fell: 1.75-inch in diameter at Union City, 1.25-inch in diameter was reported at both Mountainside and Garwood and 1.00-inch in diameter was reported in Roselle.									
<b><u>NEW JERSEY, South and Northwest</u></b>									
NOT RECEIVED.									
<b><u>NEW MEXICO, Central and North</u></b>									
Colfax County 18 SE Raton	23	1445MST			0	0			Hail (0.75)
Union County Seneca	23	1755MST 1800MST			0	0			Hail (1.75)

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>NEW MEXICO, Central and North</b>									
<b>Union County</b>									
Seneca	23	1755MST			0	0			Hail (1.75)
<b>Mckinley County</b>									
Zuni	29	1220MST			0	0			Hail (0.88)
<b>Mckinley County</b>									
1 S Van Der Wagen	29	1238MST			0	0			Hail (0.75)
<b>San Juan County</b>									
1 E Farmington	29	1246MST			0	0			Hail (0.75)
<b>San Juan County</b>									
Navajo Dam	29	1246MST			0	0			Hail (0.88)
<b>Rio Arriba County</b>									
El Vado	29	1405MST 1415MST			0	0			Hail (1.00)
<b>Rio Arriba County</b>									
El Vado to Nutrias	29	1420MST 1530MST			0	0	200K		Tstm Wind/Hail
<b>Rio Arriba County</b>									
Nutrias	29	1520MST 1521MST	0.1	30	0	0			Tornado (F0)
An unusually intense and long-lived thunderstorm developed over southwest Rio Arriba County north of Lindrith and moved northeast to El Vado and then east to Nutrias. The storm formed a mesocyclone just west of El Vado which persisted for nearly an hour producing large hail and intense downdrafts over an distance of 15 to 20 miles. Early warning allowed lake officials to clear boaters and many campers from El Vado Reservoir. Recreational vehicles that remained in a camp ground near the dam suffered extensive hail damage to all west facing sides. Several smaller buildings and boat sheds lost sections of roof as the storm passed. Additional severe hail damage to vehicles and homes was reported in Nutrias where officials confirmed west windows blown out or broken by hail in over 50 homes and buildings or practically every structure in the small community. A small tornado may also have developed which destroyed about 1500 hay bales. Hay was scattered all across the small valley and nearby foothills.									
<b>Torrance County</b>									
Moriarty	29	1450MST 1454MST			0	0			Hail (1.00)
<b>Santa Fe County</b>									
Stanley	29	1505MST			0	0			Hail (0.75)
<b>Socorro County</b>									
Alamo	29	1522MST 1526MST			0	0			Hail (0.88)
A thunderstorm formed over Alamo in northwest Socorro County yielding some unusually large hail for late September. The storm intensified even more as it moved into the unpopulated expanse of western Valencia County. Radar provided estimates of 2 inch hail as it moved toward the southern Bernalillo County border and dissipated.									
<b>Santa Fe County</b>									
Glorieta	29	1625MST 1632MST			0	0			Hail (0.75)
<b>San Miguel County</b>									
Tererro	29	1634MST			0	0			Hail (1.00)
<b>Socorro County</b>									
4 SE Alamo	30	1400MST			0	0			Hail (1.75)
<b>Valencia County</b>									
Los Lunas	30	1605MST			0	0	150K		Hail (4.50)
<b>Valencia County</b>									
Los Lunas	30	1605MST 1615MST			0	0	100K		Thunderstorm Wind (G61)
<b>Valencia County</b>									
2 NW Belen	30	1610MST			0	0	100K		Thunderstorm Wind (G61)
<b>Bernalillo County</b>									
9 S Tijeras	30	1647MST			0	0			Hail (1.00)
<b>Torrance County</b>									
5 N Tajique	30	1700MST			0	0			Hail (2.00)
<b>Torrance County</b>									
Mc Intosh	30	1728MST			0	0			Hail (1.00)

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## NEW MEXICO, Central and North

For the second day in a row, an intense thunderstorm formed over northwest Socorro County near the Alamo Navajo Reservation and moved northeast into southwest Valencia County. This storm developed a strong mesocyclone and turned eastward, moving over Los Lunas with high winds and extreme hail. A small section of the city was pounded by softball size hail. Wind gusts of 60-70 mph caused roof damage in Los Lunas and destroyed several hangers and light planes at the local airport. Winds overturned several new manufactured homes awaiting shipment at a plant just northwest of Belen. The storm continued eastward yielding large hail across southeast Bernalillo and northwest Torrance Counties. The storm finally dissipated over open rangeland south of Clines Corners.

### **San Juan County**

#### **Bloomfield**

**30 1820MST 0 0 Hail (0.75)**  
A small thunderstorm yielded lots of pea size hail and few dime sized stones.

## NEW MEXICO, South Central and Southwest

NONE REPORTED.

## NEW MEXICO, Southeast

### **NMZ027>029**

#### **Guadalupe Mountains Of Eddy County - Eddy County Plains - Lea**

**01 0000MST 0 0 Drought**  
**30 2359MST**

Drought conditions continued in Southwest Texas and Southeast New Mexico through September. Agricultural losses will be great but will not be included until the end of the harvest when totals are calculated. Most locations in southeast New Mexico received less than 1 inch of rain for the month.

### **Lea County**

#### **4 W Hobbs**

**09 1510MST 0 0 Hail (0.88)**

### **Lea County**

#### **4 W Hobbs**

**09 1510MST 0 0 1K Thunderstorm Wind**

Downburst winds knocked down several trees at a Hobbs golf course and ripped up some netting at the driving range and produce d nickel size hail.

## NEW YORK, Central

### **Seneca County**

#### **Waterloo to Seneca Falls**

**06 2355EST 0 0 250K Thunderstorm Wind**  
**07 0015EST**

A long lived severe convective wind system or derecho moved into northern portions of the county just before 100 am EDT. These same storms had caused considerable damage upstream in the Rochester area. Widespread wind damage occurred in the town of Waterloo and also across Seneca Falls. Most of the damage was in the form of downed trees and power lines.

From approximately 1255 am to 110 am EDT, the town of Waterloo experienced strong damaging winds and large hail. Many roads in the center of town had to be closed through the morning hours on Labor Day as crews worked to clear fallen trees, live wires, and damaged traffic signals. Downstream in Seneca Falls, similar damage was reported. Just before 120 am EDT, a swath of trees was blown down on the western shores of Cayuga Lake and inflicted minor damage on several small boats anchored in the vicinity. Several vacation homes in this area incurred minor roof and siding damage from large tree limbs which succumbed to the wind.

### **Cayuga County**

#### **Montezuma to Owasco**

**07 0000EST 0 3 20M Thunderstorm Wind**  
**0025EST**

The derecho which inflicted wind damage upstream to the northwest, including Seneca county, ripped across northern and central parts of Cayuga county between 100 and 130 am EDT. Much wind damage resulted. Most of the damage was in the form of downed trees and power lines, but there was a concentrated area of structural damage from Port Byron southwestward to Montezuma.

The line of severe thunderstorms first entered the county around 100 am EDT and affected an area from Montezuma to Throop to Port Byron between 100 and 110 am. It was in this region that the greatest damage occurred in the county. In the town of Port Byron, a 150 year old Presbyterian Church was nearly leveled by the ferocity of the wind. Portions of its steeple and bell tower were blown several hundred yards and actually caused some damage to adjacent structures. In Montezuma and Throop, many trees and utility poles were uprooted, with several landing on nearby cars and homes. Dozens of homes in this area sustained siding and/or roof damage.

In the city of Auburn, the storm came through around 115 am EDT and felled numerous trees and power lines. On the north side of town, damage to homes was more pronounced with roofs torn off of several buildings, including a department store. A few minor injuries were caused by flying debris in this section of town. The storms exited the county shortly before 125 am EDT with more tree damage in the town of Owasco. Ten vacation homes in the Highland Beach area on the eastern side of Owasco Lake took on minor damage in the form of blown out windows, ripped off shingles, and damaged aluminum siding.

Damage estimates were close to 20 million dollars for the county. Portions of Port Byron and Auburn in the hardest hit areas were without electrical power for close to 3 days. Cayuga county eventually qualified to receive federal disaster relief money.

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## NEW YORK, Central

### Onondaga County Baldwinsville to Manlius

07	0010EST 0040EST	3	7	90M	Thunderstorm Wind
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The derecho that caused extensive wind damage upstream in both Cayuga and Seneca counties continued eastward across Onondaga county. Widespread structural damage resulted and tens of thousands of trees were toppled in northern portions of the county. Direct human impact was also felt. Two fatalities and seven injuries occurred at the New York State Fairgrounds in Geddes.

The bow echo complex first entered northwestern sections of the county just after 100 am EDT. It initially tore through the Baldwinsville area, leaving many streets littered with downed trees and utility poles. The storms progressed rapidly towards the east-southeast and affected an area from Clay across Onondaga Lake to Camillus and Geddes from 115 to 120 am EDT. Severe damage was inflicted upon the State Fairgrounds in Geddes. Most of the temporary holding structures or tents on the premises were either completely destroyed or sustained heavy damage. Unfortunately, two individuals who were camping out before the last day of the New York State Fair died that night. A 26 year old man was killed when he was struck by flying debris from a nearby building. A 38 year old man, who was a vendor at the Fair, was killed when a large tree fell upon the tent where he was sleeping. Seven other individuals had minor injuries, mostly cuts and scrapes from flying glass. Three large flag poles at the entrance to the Fairgrounds were bent to almost a 45 degree angle from the force of the wind. Many permanent buildings had roofs torn off, windows blown out, or siding severely damaged from felled trees.

In Marcellus and Camillus Townships, an estimated thousands of trees were blown down just in this area alone. The Onondaga Hill section appeared to take on particularly severe damage with most roadways rendered completely impassable from downed trees and live wires. Several homes also had various degrees of siding and roof damage in this vicinity, mainly from falling trees.

The storms then took aim on the Syracuse metropolitan area. From approximately 125 to 135 am EDT, the city of Syracuse felt the brunt of the derecho. An estimated many thousands of trees were toppled or damaged throughout the city. One of the hardest hit sections was the Thornden Park area near Syracuse University. In addition to tree damage, there was substantial structural damage (primarily roofs) to nearby homes and buildings. Another fatality occurred in this vicinity when a large tree crashed through the roof of a home and struck an elderly woman who was sleeping. She later died from extensive head injuries. A textile factory had its roof almost completely torn away and many housing units for students at Syracuse University had blown out windows or damaged sections of the roof. St. Lucy's Church, a sturdy brick structure, was nearly destroyed when its western steeple collapsed. Many windows were also blown in at the University Hospital. On the north side of town, an official wind gust to 75 mph was recorded at Hancock International Airport.

The storms maintained their intensity as they moved rapidly through the eastern suburbs. Large hail to one inch in diameter was observed by a skywarn spotter in Manlius. Another spotter in DeWitt measured a wind gust of 75 mph. Much in the way of downed trees and structural damage was again reported. A strip mall and fire station both in the town of Manlius had their roofs entirely torn off. Two large antennas just south of Interstate 481 in DeWitt collapsed and interrupted local radio broadcasts.

In all, the financial toll from damage fell just short of 100 million dollars. The final day of the New York State Fair was cancelled and the National Guard was called on to help with the cleanup efforts. Onondaga county ultimately qualified for federal disaster funds after officials toured the area and reviewed post-storm damage surveys. These surveys revealed a damage swath 10 to 12 miles long and nearly 30 miles wide. Estimated peak wind gusts were near 115 mph. Hundreds of thousands of people were without power for much of Labor Day. Some customers did not have their power restored for the better part of a week. M26CA, M38CA, F75PH

### Madison County Oneida to Peterboro

07	0045EST 0105EST	0	0	5M	Thunderstorm Wind
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The derecho continued to plow towards the east from the Syracuse area into Madison county. Widespread wind damage again resulted, mainly across northern and eastern sections of the county. Several reports of large hail were also received.

The line of severe storms first affected Sullivan and Oneida Townships between roughly 145 and 155 am EDT. Trees and power lines were downed throughout the area. Several automobiles in the parking lot of a convenience store in Oneida were damaged from falling trees. The storms ripped through the Lincoln, Stockbridge, and Peterboro areas from 155 am to about 205 am EDT. Numerous reports of golf ball sized hail were taken from skywarn spotters. One of these spotters also measured a wind gust of 7.5 mph. In Peterboro, close to a dozen homes were damaged from fallen trees or flying debris. One of these homes had its back deck severely damaged and a glass door shattered when the strong winds picked up large pieces of lumber and sent them flying into the backyard. Power outages were experienced by nearly 50,000 customers in the county during the height of the storm.

### Oneida County Verona to New Hartford

07	0055EST 0120EST	0	0	10M	Thunderstorm Wind
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The derecho continued to progress quickly towards the east-southeast. It inflicted more widespread wind damage down the western Mohawk Valley. Tree and structural damage was quite common over central and southern sections of the county. Additional reports of large hail were also noted.

Severe storms initially entered the county in Verona just before 200 am EDT. A large swath of trees was toppled or damaged just north of the Thruway and along route 31 near Verona Station and Dams Corners. Portions of route 31 became impassable as large tree limbs and power lines blocked the roadway. Further downstream from Westmoreland southward to the Waterville area, more extensive tree damage was seen. Several homes in Westmoreland suffered structural damage as large trees crashed through the roof or the garage.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## **NEW YORK, Central**

From roughly 215 to 220 am EDT, the storms tore through the Utica and New Hartford areas with considerable tree damage. In downtown Utica, many of the primary thoroughfares were closed through at least the morning hours on Labor Day as streets were covered with large tree limbs, downed wires, and warped traffic signals. A portion of Interstate 790 just north of Utica was also closed for a short time as a large road sign was toppled onto the highway. In New Hartford, a restaurant had its windows blown out with major damage to the kitchen and seating areas from flying glass and debris. Large hail to golf ball sized in diameter was observed in Clinton and Kirkland. Several automobiles had dents and other minor damage from the hailstones.

Again, tens of thousands of customers spent most of Labor Day in the dark. Some homes and businesses in the harder hit areas of Utica and Waterville did not have power restored for up to 4 days.

### **Steuben County Wheeler**

**07 0100EST 0 0 Hail (0.75)**

A southward moving outflow boundary touched off some thunderstorms across northern Steuben county. A cell briefly strengthened to severe limits in the town of Wheeler around 200 am EDT. Dime sized hail was observed.

### **Chenango County Plymouth to North Norwich**

**07 0120EST 0 0 20K Thunderstorm Wind**  
**0125EST**

The southern tail end of the derecho which severely affected areas to the north of Chenango county produced some relatively minor wind damage in a few of the northern tier communities. Strong wind gusts toppled several trees and power lines in an area from Plymouth eastward across Earlville and North Norwich shortly before 230 am EDT. Sections of route 12B were closed for a short time until crews were able to clear fallen tree limbs and power lines.

### **Otsego County Cooperstown**

**07 0135EST 0 0 10K Thunderstorm Wind**

The southern-most end of the derecho complex that produced major damage to the northwest of Otsego county caused relatively minor wind damage within the county over northern sections. Several trees and power lines were blown down in and around Cooperstown shortly after 230 am EDT.

### **Delaware County Sidney**

**07 0200EST 0 0 10K Thunderstorm Wind**

A thunderstorm cell briefly intensified to severe limits across northern sections of the county. Strong wind gusts toppled a couple of trees and power lines in Sidney close to 300 am EDT.

### **Schuyler County Beaver Dams to Mecklenburg**

**07 0210EST 0 0 25K Thunderstorm Wind**  
**0230EST**

The same line of severe thunderstorms that produced isolated wind damage in Steuben county also produced scattered wind damage in Schuyler county. Spotty tree damage was noted from the Beaver Dams area eastward to near Mecklenburg between about 315 and 330 am EDT. Portions of routes 79 and 228 were shut down as the roadways were blocked by tree limbs and live wires.

### **Steuben County Hornell**

**07 0210EST 0 0 10K Thunderstorm Wind**

A line of thunderstorms moved southward into the county and briefly intensified to severe limits. Strong wind gusts toppled trees and power lines in and around Hornell.

### **Tompkins County Dryden**

**07 0250EST 0 0 10K Thunderstorm Wind**

The same thunderstorm complex that affected portions of Steuben and Schuyler counties produced isolated wind damage in southeastern Tompkins county. A few large trees were blown down in and near the town of Dryden.

### **Sullivan County Lake Huntington**

**07 0500EST 0 0 10K Thunderstorm Wind**

A thunderstorm cell quickly strengthened to severe intensity over central portions of the county just prior to sunrise. Wind gusts knocked down several trees and some power lines in and close to Lake Huntington around 600 am EDT.

### **Oneida County Camden to Ava**

**26 2055EST 0 0 25K Thunderstorm Wind**  
**2110EST**

A line of severe thunderstorms plowed across northern sections of the county late in the evening. Several trees and power lines were downed in a corridor from Camden eastward to Ava around and just after 1000 pm EDT.

### **Otsego County Springfield to East Springfield**

**26 2210EST 0 0 50K Thunderstorm Wind**  
**2212EST**

The southern tail end of a line of thunderstorms that produced wind damage upstream to the northwest also produced isolated wind damage in the far northern portions of Otsego county late in the evening. Strong winds damaged a door and blew in part of a small wall at a house along route 20 in Springfield Township around 1110 pm EDT. Only a short time later, the roof was blown off of a trailer in East Springfield.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## NEW YORK, Central

### **Steuben County**

<b>Hornell to Corning</b>	<b>27</b>	<b>1210EST 1230EST</b>			<b>0</b>	<b>0</b>	<b>125K</b>		<b>Thunderstorm Wind</b>
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A fast moving line of thunderstorms intensified to severe limits as it pushed east-southeastward across the county early in the afternoon. Widespread wind damage was the result.

Numerous trees and wires were downed in Hornell as the storm moved through that area just after 100 pm EDT. Thereafter, the storms continued to leave a legacy of downed trees and power lines through Howard and Cameron Townships. Around 130 p m EDT, severe thunderstorms ripped through the town of Corning. The north side of town was hardest hit with dozens of trees toppled and some minor structural damage inflicted to homes from falling tree limbs.

### **Chemung County**

<b>Horseheads to East Elmira</b>	<b>27</b>	<b>1245EST 1250EST</b>			<b>0</b>	<b>0</b>	<b>70K</b>		<b>Thunderstorm Wind</b>
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The same line of thunderstorms that produced damage across Steuben county continued eastward into Chemung county and maintained its intensity. More wind damage resulted in the greater Elmira area.

Many trees were uprooted or blown down in an area from Horseheads south and southeast towards East Elmira. Several traffic lights were also dislodged, forcing the closure of a few roads for a brief time period. One home in East Elmira sustained minor damage as a large tree crashed through a portion of a separated garage.

### **Tioga County**

<b>4 SW Barton to Nichols</b>	<b>27</b>	<b>1320EST 1325EST</b>			<b>0</b>	<b>0</b>	<b>35K</b>		<b>Thunderstorm Wind</b>
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Severe thunderstorms that produced wind damage upstream in both Steuben and Chemung counties contined into Tioga county and clipped southern sections near the state line.

Isolated reports of wind damage were received from North Waverly eastward towards Nichols between 215 and 230 pm EDT. Most of the damage took the form of downed trees and power lines. Road signs were also toppled near Nichols.

## NEW YORK, Coastal

### **Richmond County**

<b>Great Kills</b>	<b>07</b>	<b>1317EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G70)</b>
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### **Bronx County**

<b>Bronx</b>	<b>07</b>	<b>1330EST 1335EST</b>			<b>1</b>	<b>2</b>			<b>Thunderstorm Wind (G52)</b>
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F19OU

### **Richmond County**

<b>Richmond</b>	<b>07</b>	<b>1330EST 1335EST</b>			<b>0</b>	<b>1</b>			<b>Thunderstorm Wind (G70)</b>
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### **Kings County**

<b>Countywide</b>	<b>07</b>	<b>1336EST 1345EST</b>			<b>0</b>	<b>1</b>			<b>Thunderstorm Wind (G60)</b>
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### **Queens County**

<b>Queens Vlg</b>	<b>07</b>	<b>1336EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G54)</b>
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### **Westchester County**

<b>Armonk</b>	<b>07</b>	<b>1336EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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### **New York County**

<b>New York</b>	<b>07</b>	<b>1340EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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### **Kings County**

<b>Coney Is</b>	<b>07</b>	<b>1345EST</b>			<b>0</b>	<b>0</b>			<b>Funnel Cloud</b>
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### **Kings County**

<b>Coney Is</b>	<b>07</b>	<b>1345EST</b>			<b>0</b>	<b>1</b>			<b>Hail (1.50)</b>
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### **Kings County**

<b>Brooklyn</b>	<b>07</b>	<b>1350EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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### **Nassau County**

<b>Countywide</b>	<b>07</b>	<b>1350EST 1400EST</b>			<b>0</b>	<b>0</b>	<b>2.5M</b>		<b>Thunderstorm Wind (G65)</b>
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### **Nassau County**

<b>Long Beach</b>	<b>07</b>	<b>1350EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
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### **Queens County**

<b>(Jfk)Kennedy Inl Arp</b>	<b>07</b>	<b>1351EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G54)</b>
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### **Nassau County**

<b>Lynbrook</b>	<b>07</b>	<b>1355EST</b>	<b>0.2</b>	<b>200</b>	<b>0</b>	<b>6</b>	<b>1M</b>		<b>Tornado (F2)</b>
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The NWS confirmed that an F2 tornado was responsible for significant damage that occurred in Lynbrook. Most of the village



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## NEW YORK, Coastal

received damage from straight line winds up to 80 mph, that was associated with a severe squall line. Downed trees covered the village with some structural damage where the F2 tornado touched down.

The major path of damage was from the northwest section of Lynbrook east-southeast to the southeast section of the village. Funnel clouds were observed from near the intersection of Marshall Ave. and Burtis Street and to the southeast. A tornado was first sighted by two eyewitnesses on Hampton Place. It rose and touched down several times: Second, near Winter Street and across Glover Circle; Third, along Peninsula Blvd. between Earle and Benton Avenues; and Fourth, as a weak F2 near the intersection of Rocklyn Ave. and Merrick Road. It moved across the Long Island Railroad Tracks and Sunrise Highway before it finally dissipated.

More than three hundred trees were blown over, many on houses and cars. Six people received minor injuries. Four of these were in "The Fun Zone" on Rocklyn Avenue. One woman was slightly injured by a tree that fell on her car. One police officer was also injured.

<b>Suffolk County</b> <b>Babylon</b>	<b>07</b>	<b>1408EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G61)</b>
<b>Nassau County</b> <b>Farmingdale</b>	<b>07</b>	<b>1410EST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
<b>Suffolk County</b> <b>West Babylon to</b> <b>Wading River</b>	<b>07</b>	<b>1415EST</b> <b>1428EST</b>			<b>1</b>	<b>2</b>			<b>Thunderstorm Wind (G63)</b>
		M61BO							
<b>Nassau County</b> <b>Massapequa to</b> <b>Valley Stream</b>	<b>07</b>	<b>1425EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
<b>Suffolk County</b> <b>East Patchogue</b>	<b>07</b>	<b>1430EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Suffolk County</b> <b>Brookhaven to</b> <b>Westhampton Beach Ar</b>	<b>07</b>	<b>1445EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>

An intense line of severe thunderstorms oriented from north to south developed during Labor Day afternoon ahead of a strong approaching cold front. As the storms moved east at 40 to 50 mph, they produced high winds, large hail, and an isolated tornado. Wind gusts from 60 to 80 mph downed many trees and power lines throughout the area. The cost estimates of damage included above are preliminary figures submitted by the Nassau County Office of Emergency Management.

In Richmond County, the following peak wind gusts were reported: 80 mph at Great Kills, the Verranzano Bridge, and in Richmond. High winds downed trees and caused a building to collapse in Richmond. One tree fell on and injured a man in Richmond.

In New York County (Manhattan), high winds caused a building to collapse.

In the Bronx, high winds downed a tree that fell on 3 people resulting in 1 death and 2 injuries in the courtyard of the Edenwald Houses at 1135 East 229th Street.

In Kings County (Brooklyn), high winds downed and uprooted several large trees. One tree fell on and injured a person at East 229th Street. Five to 6-foot diameter trees were uprooted east of Coney Island in the Gerritsen Beach Section, where 3 funnel clouds were also sighted and a firefighter was injured from large hail. Large trees also fell on and damaged cars in Bensonhurst.

In Queens County, a peak wind gust of 62 mph was measured at both LaGuardia Airport and at JFK Airport.

In Nassau County, the following peak wind gusts were reported: 75 mph in Farmingdale, 60 mph in Port Washington and Mineola and 58 mph at Farmingdale Republic Airport. High winds downed large tree limbs at Rockville Center, Baldwin, and Oceanside and downed trees in Long Beach, Massapequa, and Valley Stream. One-inch diameter hail dented cars and covered the ground in Farmingdale.

In Suffolk County, high winds overturned many boats in the Great South Bay, downed large trees in West Babylon and Rocky Point and downed large tree limbs in Wading River. One person died when a thunderstorm wind gust capsized a 19 foot sail boat in Great South Bay near Copiague. A Centerport woman, 36, and her daughter, 3, were injured when a tree fell on them in the parking lot of the Ground Round Restaurant and CVS on Fort Salonga Road. The following peak wind gusts were reported: 72 mph in Babylon and 65 mph in Fire Island.

<b>Orange County</b> <b>Florida to</b> <b>Chester</b>	<b>27</b>	<b>1845EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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# Storm Data and Unusual Weather Phenomena

		Time	Path	Path	Number of		Estimated		September 1998
Location	Date	Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property Damage	Crops	Character of Storm
<b><u>NEW YORK, Coastal</u></b>									
As a line of severe thunderstorms moved southeast across the county, they produced high winds that downed trees from Florida northeast to Chester.									
<b><u>NEW YORK, East</u></b>									
Saratoga County Malta	02	1635EST			0	0	3K		Thunderstorm Wind
Saratoga County Stillwater	02	1635EST			0	0	2K		Thunderstorm Wind
A prefrontal trough moving quickly across New York State, produced an isolated severe thunderstorm over Saratoga County. The storm knocked down trees in Malta and Stillwater.									
Herkimer County Old Forge	06	2348EST			0	0			Hail (0.88)
Herkimer County Herkimer	07	0117EST			0	0	10K		Thunderstorm Wind
Herkimer County Fairfield	07	0118EST			0	0	20K		Thunderstorm Wind (G78)
Herkimer County Columbia Center to Salisbury	07	0120EST			0	0			Hail (0.75)
Herkimer County Frankfort	07	0120EST			0	0			Hail (0.75)
Herkimer County Ilion	07	0120EST			0	0	11K		Tstm Wind/Hail
Herkimer County Little Falls	07	0120EST			0	0	85K		Tstm Wind/Hail
Herkimer County Dolgeville	07	0121EST			0	0	25K		Thunderstorm Wind
Montgomery County St Johnsville	07	0135EST			0	0	300K		Thunderstorm Wind
Fulton County Gloversville	07	0140EST			0	0	1M		Thunderstorm Wind (G60)
Fulton County Johnstown	07	0140EST			0	0	100K		Thunderstorm Wind
Fulton County Perth	07	0140EST			0	0	150K		Thunderstorm Wind
Montgomery County Glen	07	0140EST 0142EST			0	0	100K		Thunderstorm Wind (G80)
Fulton County Broadalbin	07	0145EST			0	0	250K		Thunderstorm Wind
Hamilton County Lake Pleasant	07	0145EST			0	0	2K		Thunderstorm Wind
Montgomery County Ft Plain	07	0145EST 0150EST			0	0	50K		Tstm Wind/Hail
Schoharie County Carlisle	07	0145EST			0	0	10K		Thunderstorm Wind
Schoharie County Sharon	07	0145EST			0	0	2K		Thunderstorm Wind
Montgomery County Canajoharie	07	0150EST			0	0	100K		Thunderstorm Wind
Montgomery County Charleston	07	0155EST			0	0	25K		Thunderstorm Wind
Montgomery County Fonda	07	0155EST			0	0	200K		Thunderstorm Wind
Montgomery County Rural Grove	07	0155EST			0	0	20K		Thunderstorm Wind

# Storm Data and Unusual Weather Phenomena

September 1998

		Time	Path	Path	Number of		Estimated		September 1998
Location	Date	Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	Character of Storm
<b><u>NEW YORK, East</u></b>									
<b>Schenectady County</b>									
Schenectady	07	0200EST			0	0	2K		Thunderstorm Wind
<b>Saratoga County</b>									
Ballston Spa	07	0205EST			0	0	10K		Thunderstorm Wind
<b>Saratoga County</b>									
Burnt Hills	07	0205EST			0	0	5K		Thunderstorm Wind
<b>Saratoga County</b>									
Charlton	07	0205EST			0	0	13K		Thunderstorm Wind
<b>Saratoga County</b>									
Clifton Park	07	0205EST			0	0	12K		Thunderstorm Wind
<b>Saratoga County</b>									
Malta	07	0205EST			0	0	9K		Thunderstorm Wind
<b>Albany County</b>									
New Scotland	07	0215EST			0	0	3K		Thunderstorm Wind
<b>Rensselaer County</b>									
Schaghticoke	07	0220EST			0	0	2K		Thunderstorm Wind
<b>Washington County</b>									
Ft Edward to Fitch Pt	07	0233EST			0	0			Hail (0.75)
<b>Saratoga County</b>									
Edinburg	07	0250EST			0	0	10K		Thunderstorm Wind
<b>Ulster County</b>									
Kingston	07	0500EST			0	0	3K		Thunderstorm Wind
<b>Dutchess County</b>									
Red Hook	07	0510EST			0	0	2.5K		Thunderstorm Wind
<b>Dutchess County</b>									
Rhinebeck to Red Hook	07	0510EST			0	0	3.5K		Thunderstorm Wind

A derecho developed ahead of a strong cold front in Ontario Canada late on the evening of the 6th. The Derecho moved across northwestern New York State, down the Mohawk Valley then departed the state shortly before dawn. The line of storms produced widespread damage to a good portion of upstate New York. Fulton, Montgomery and Herkimer Counties were declared disaster areas.

In Herkimer County the wind was clocked as high as 78 mph, and blew down scores of trees and powerlines. Many residences were left in the dark. Extensive damage was done in Gorge View Lanes and Veterans Memorial Park in Herkimer County. In Gloversville, Fulton County, winds clocked at 60 mph toppled a 300 foot antenna that was owned by WIZR-930 AM Radio Station. 1.5 million dollars of damage was sustained in Fulton County alone which included 350 homes that were damaged or destroyed. In Glen, Montgomery County, a wind gust was clocked at 80 mph. Thunderstorm wind in Fonda knocked down an 80 foot long tent while the Montgomery County Fair was in progress. Downed trees limbs and wires clogged roadways across much of the Mohawk Valley and to a lesser extent, in the Lake George Saratoga Region and Hudson Valley region from Glens Falls south to Kingston. An old cemetery was damaged in Charlton Saratoga County.

At the height of the storm as many as 30,000 people were without power. In some cases, power was not restored for several days. Several school districts in the Mohawk Valley were closed on the first official school day.

There were several reports of dime size hail, mainly in Herkimer County.

There were no fatalities or significant injuries reported in Eastern New York with this storm.

<b>Saratoga County</b>									
Malta	08	1608EST			0	0			Hail (0.88)
Very cold air aloft spawned widely scattered thunderstorms during the evening hours across eastern New York. One cell produced nickel size hail in Malta, Saratoga County.									
<b>Saratoga County</b>									
Mechanicville	21	1440EST			0	2	20K		Thunderstorm Wind
<b>Saratoga County</b>									
Halfmoon	21	1445EST			0	0	10K		Thunderstorm Wind
<b>Saratoga County</b>									
Mechanicville	21	1450EST			0	0	1K		Hail (1.00)

# Storm Data and Unusual Weather Phenomena

September 1998

		Time	Path	Path	Number of		Estimated		September 1998
Location	Date	Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	Character of Storm
<b><u>NEW YORK, East</u></b>									
<b>Rensselaer County</b>									
<b>Melrose</b>	21	1500EST			0	0	2K		<b>Thunderstorm Wind</b>
Low pressure over southern Canada and an associated cold front moving across New York State, produced a lone supercell during the afternoon hours in southern Saratoga county. The supercell then moved into northern Rensselaer county. The storm downed many trees in Mechanicville. One tree fell atop a car and produced minor head injuries to the driver and passengers of the vehicle. A roof was blown off a new modular home in Halfmoon. Thunderstorm wind damaged trees at Melrose in Rensselaer county. Quarter size hail was also noted in Mechanicville.									
<b>Herkimer County</b>									
<b>Old Forge</b>	26	2045EST			0	0	5K		<b>Thunderstorm Wind</b>
<b>Herkimer County</b>									
<b>Columbia Center</b>	26	2100EST			0	0	50K		<b>Thunderstorm Wind</b>
<b>Herkimer County</b>									
<b>Old Forge</b>	26	2100EST			0	0	2K		<b>Thunderstorm Wind</b>
<b>Hamilton County</b>									
<b>Blue Mtn Lake</b>	26	2115EST			0	0	3.5K		<b>Thunderstorm Wind</b>
<b>Hamilton County</b>									
<b>Inlet</b>	26	2115EST			0	0	4K		<b>Thunderstorm Wind</b>
<b>Herkimer County</b>									
<b>Herkimer</b>	26	2125EST			0	0	2.5K		<b>Thunderstorm Wind</b>
<b>Fulton County</b>									
<b>Oppenheim</b>	26	2145EST			0	0	3K		<b>Thunderstorm Wind</b>
<b>Fulton County</b>									
<b>Caroga Lake</b>	26	2150EST			0	0	1.5K		<b>Thunderstorm Wind</b>
<b>Herkimer County</b>									
<b>Cedar Lake</b>	26	2150EST			0	0	1K		<b>Thunderstorm Wind</b>
<b>Fulton County</b>									
<b>Johnstown</b>	26	2200EST			0	0	4K		<b>Lightning</b>
<b>Fulton County</b>									
<b>Mayfield</b>	26	2200EST			0	0	4.5K		<b>Thunderstorm Wind</b>
<b>Hamilton County</b>									
<b>Benson</b>	26	2200EST			0	0	1.5K		<b>Thunderstorm Wind</b>
<b>Montgomery County</b>									
<b>Ft Plain</b>	26	2200EST			0	0	3.5K		<b>Thunderstorm Wind</b>
<b>Fulton County</b>									
<b>Broadalbin</b>	26	2205EST			0	0	2K		<b>Thunderstorm Wind</b>
<b>Montgomery County</b>									
<b>Canajoharie</b>	26	2205EST			0	0	5K		<b>Thunderstorm Wind</b>
<b>Saratoga County</b>									
<b>Edinburg</b>	26	2205EST			0	0	3K		<b>Thunderstorm Wind</b>
<b>Saratoga County</b>									
<b>Galway</b>	26	2215EST			0	0	1.5K		<b>Thunderstorm Wind</b>
<b>Saratoga County</b>									
<b>Milton Center</b>	26	2215EST			0	0	4K		<b>Thunderstorm Wind</b>
<b>Schoharie County</b>									
<b>Cobleskill</b>	26	2230EST			0	0	1K		<b>Thunderstorm Wind</b>
<b>Saratoga County</b>									
<b>Halfmoon</b>	26	2235EST			0	0	3K		<b>Thunderstorm Wind</b>
<b>Albany County</b>									
<b>New Scotland</b>	26	2248EST			0	0	2K		<b>Thunderstorm Wind</b>
<b>Albany County</b>									
<b>Westerlo</b>	26	2248EST			0	0	3.5K		<b>Thunderstorm Wind</b>
<b>Columbia County</b>									
<b>Stuyvesant</b>	26	2300EST			0	0	1K		<b>Thunderstorm Wind</b>
<b>Albany County</b>									
<b>Ravena</b>	26	2305EST			0	0	2.5K		<b>Thunderstorm Wind</b>

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>NEW YORK, East</u></b>									
<b>Columbia County</b>									
Niverville	26	2305EST			0	0	3K		Thunderstorm Wind
<b>Greene County</b>									
Catskill	26	2315EST			0	0	3K		Thunderstorm Wind
<b>Dutchess County</b>									
Pine Plains	26	2330EST			0	0	3K	2K	Hail (2.00)
A strong upper level disturbance moving rapidly east from the Great Lakes Region, coupled with a warm, moist airmass in place, triggered a powerful squall line on the evening of the 6th in New York. The line of storms moved from northwest to southeast across New York during the nighttime hours of the 6th and 7th producing widespread damage across the Empire State. The most note worthy damage in eastern New York was the destruction of a barn and silo on North Columbia Road in Columbia Center in western Herkimer County. Damage from the microburst appeared to be the equivalent of F1 Damage as much of the roof and siding was demolished. Most other wind damage included trees and power lines downed across many localities in the Mohawk valley and Saratoga Region. The damage was less severe in the immediate Capital District. At the height of the storm approximately 5,000 customers had no power. Lightning caused damage to a garage in Johnstown. There were many reports of dime size hail throughout eastern New York. Golf ball size hail was reported at Pine Plains in northeast Dutchess County.									
<b><u>NEW YORK, North</u></b>									
<b>Clinton County</b>									
West Chazy	06	1945EST			0	0			Hail (1.75)
A cold front moved southeast from Canada across northern New York during the night of Sunday, September 6th. Locally strong winds and large hail accompanied a few of the storms. Specifically, in West Chazy (Clinton county), golfball size hail was reported. Frequent lightning was also reported.									
<b>St. Lawrence County</b>									
Gouverneur	26	2021EST			0	0	15K		Thunderstorm Wind
<b>St. Lawrence County</b>									
Canton	26	2030EST			0	0	5K		Thunderstorm Wind
A warm front moved across the area followed by a moist and unstable airmass. Thunderstorms developed across northern New York during the evening hours. Strong winds blew down trees with power outages in Gouverneur and Canton. Trees fell across a road in Gouverneur causing an automobile accident.									
<b>Franklin County</b>									
North Portion	27	2000EST 2200EST			0	0	100K		Flash Flood
A cold front moved southeast from Canada across northern New York during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Torrential downpours accompanied these storms with flash flooding across northern portions of Franklin county. The hardest hit area was Whippleville where a feeder creek of the Salmon River became clogged with debris and flooded roads with some closed. Garages and basements were also flooded with interior damage to some homes. Flooding also occurred in Malone and Bombay.									
<b><u>NEW YORK, West</u></b>									
<b>Niagara County</b>									
Olcott	06	2255EST			0	0	250K	2M	Thunderstorm Wind
<b>Niagara County</b>									
Barker	06	2300EST			0	1			Lightning
<b>Orleans County</b>									
Shelby	06	2300EST			0	0	5M	5M	Thunderstorm Wind
<b>Orleans County</b>									
Clarendon	06	2310EST			0	0	100K		Hail (0.75)
<b>Monroe County</b>									
Rochester Arpt	06	2315EST			0	0	20M	2M	Thunderstorm Wind (G78)
<b>Monroe County</b>									
Brockport	06	2320EST			0	0	350K		Thunderstorm Wind
<b>Genesee County</b>									
Batavia	06	2325EST			0	0	100K		Thunderstorm Wind
<b>Monroe County</b>									
Pittsford	06	2330EST			0	0	1.2M		Thunderstorm Wind
<b>Wayne County</b>									
Macedon	06	2330EST			0	0	5M		Thunderstorm Wind

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>NEW YORK, West</b>									
<b>Cayuga County</b>									
Cato	07	0000EST			0	0	5M	1M	Thunderstorm Wind
<b>Ontario County</b>									
Victor	07	0020EST			0	0	1M		Thunderstorm Wind
<b>Oswego County</b>									
Phoenix	07	0020EST			0	0	500K		Thunderstorm Wind
<b>Wayne County</b>									
Lyons	07	0020EST			0	0	5M	500K	Thunderstorm Wind
Severe thunderstorms moved onshore over northeast Niagara county shortly before midnight near Olcott and Golden Hill State Park in Barker. The line of storms quickly moved across Orleans, Monroe, Wayne, Ontario, and northern Cayuga counties. Across the area the damage path was nearly one hundred miles long and five to ten miles wide. Winds were estimated between 80 and 100 mph throughout the two hour event. Along the entire path, damage and debris all laid in an easterly direction consistent with the damage from straight-line winds. Most of the damage consisted of downed trees and limbs. The falling trees and limbs in turn downed power and telephone lines and resulted in damage to buildings and automobiles. Power outages, some lasting nearly a week, were widespread across parts of Orleans, Monroe and Wayne counties. Hundreds of thousands of customers were without power. The strong winds themselves also resulted in structural damage to homes, barns and buildings along the path including some in Lyndonville, Albion, Holley, Brockport, Bushnells Basin, Macedon and Clyde. Several aircraft were damaged at the Rochester Airport where wind gusts were measured at 89 mph. States of Emergency were declared throughout Monroe and Wayne counties and sections of Orleans county. Monroe, Wayne and Cayuga counties were declared federal disaster areas. The strong winds severely damaged apple crops and trees from Niagara across Orleans and Monroe through Wayne counties. At the Golden Hill State Park, a 42 year-old man was struck by lightning but only slightly injured.									
<b>Erie County</b>									
Orchard Park	06	2330EST			0	0	15K		Hail (0.75)
<b>Erie County</b>									
Holland	06	2355EST			0	0	8K		Hail (0.75)
<b>Allegany County</b>									
Hume	07	0029EST			0	0	15K		Thunderstorm Wind
Thunderstorms developed during the overnight along old thunderstorm boundaries. The severe storms produced 3/4" hail and damaging winds. The strong winds downed trees and power lines.									
<b>Jefferson County</b>									
Pt Peninsula	26	2017EST			0	0	5K		Thunderstorm Wind
<b>Jefferson County</b>									
Dexter	26	2022EST			0	0	15K		Thunderstorm Wind
<b>Lewis County</b>									
Natural Bridge	26	2035EST			0	0	12K		Thunderstorm Wind (G53)
<b>Oswego County</b>									
Central Square	26	2054EST			0	0	10K		Thunderstorm Wind
Thunderstorms moved onshore from Lake Ontario and produced damaging winds across the north country. The thunderstorms, gusting to 61 mph, downed trees and power lines and resulted in some structural damage in Dexter.									
<b>Erie County</b>									
Millgrove	27	1315EST			0	0	20K		Hail (1.00)
<b>Erie County</b>									
Alden	27	1336EST			0	0	20K		Hail (1.00)
<b>Niagara County</b>									
Niagara Falls	27	1540EST			0	0	500K	500K	Hail (4.00)
<b>Niagara County</b>									
Lockport	27	1610EST			0	0	100K		Hail (1.00)
<b>Orleans County</b>									
Albion	27	1630EST			0	0	20K	300K	Hail (0.75)
Some of the most intense thunderstorms in years moved across the Niagara Peninsula into Niagara, Erie, and Orleans counties. The thunderstorms produced hail up to four inches in diameter that broke numerous windows and windshields. Hundreds of cars were dented with damages of up to a couple of thousand dollars each. Although the storms were not accompanied by strong winds, the torrential rains produced resulted in visibilities near zero at times. After the storms, lawns and streets were covered white with hailstones. In Niagara Falls, a greenhouse was 98% destroyed as hailstones smashed the glass panes. The large hailstones damaged apple crops in Niagara and Orleans counties which had already been hurt by a windstorm earlier in the month.									

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>NORTH CAROLINA, Central</u></b>									
<b>Alamance County</b> Countywide	04	0100EST 0500EST			0	0			<b>Flash Flood</b>
The remnants of Hurricane Earl spread heavy rain across Alamance county during the early morning hours. Totals of 3 to 5 inches were common. This caused serious flooding of streams and creeks. Many rural roads were closed due to high water. Ponding of water due to poor drainage was also common in the larger communities.									
<b>Montgomery County</b> Countywide	04	0100EST 0300EST			0	0			<b>Flash Flood</b>
The remnants of Hurricane Earl dropped very heavy rain on Montgomery county. Rainfall amounts of 3 to 5 inches were reported . This flooded creeks and streams, which lead to the   closing of many rural and urban highways.									
<b>Stanly County</b> Countywide	04	0100EST 0500EST			0	0			<b>Flash Flood</b>
The remnants of Hurricane Earl dropped copious amounts of rainfall on Stanly county. Rainfall totals of 4 to 6   inches were common. Of course, this caused most streams and creeks to overflow their banks, closing rural and urban roads. Some homes and businesses were affected.									
<b>Anson County</b> Countywide	04	0200EST 0600EST			0	0			<b>Flash Flood</b>
The slow moving remnants of Earl produced very heavy rainfall across Anson county.   Reports of 5 to 7 inches of rain during the morning were received. This produced serious flooding of streams and creeks, which flooded many rural roads and poor drainage areas.									
<b>Davidson County</b> Countywide	04	0200EST 0400EST			0	0			<b>Flash Flood</b>
A large shield of heavy rain...associated with Hurricane Earl...produced rainfall amounts of 3 to 4 inches in Davidson county durin g the early morning hours. The heaviest rain fell in the southern half of the county. This   flooded many roads, as local streams and creeks overflowed their banks.									
<b>Wayne County</b> 5 S Goldsboro	08	1235EST			0	0			<b>Hail (1.00)</b>
<b>Sampson County</b> 2 SE Harrells	08	1415EST			0	0			<b>Hail (1.00)</b>
<b><u>NORTH CAROLINA, Central Coastal</u></b>									
<b>Lenoir County</b> Pink Hill	01	1505EST			0	0			<b>Hail (0.88)</b>
<b>Lenoir County</b> 1 N Pink Hill	01	1520EST			0	0			<b>Thunderstorm Wind (G50)</b>
A slow moving severe thunderstorm near Pink Hill dropped marble size hail and downed trees and power lines in the area.									
<b>Carteret County</b> Morehead City	03 04	1800EST 0100EST			0	0	25K		<b>Heavy Rain</b>
Strong winds and torrential rains associated with the remnants of Huricane Earl caused additional damage to the Carteret Community College student center/classroom building, which was already severely damaged during Hurricane Bonnie. The winds caused temporary protective measures installed after Bonnie to break allowing water from the heavy rains to enter the building. The rain caused water damage to the structure and contents of the building. Fabirform installed to stabilize the shoreline in front of the Crystal Coast Civic Center and western campus broke apart causing significant erosion.									
<b>Carteret County</b> 2.5 S Cape Carteret to Bogue	03	2130EST	2	50	0	0	50K		<b>Tornado (F0)</b>
The remnants of Hurricane Earl moved rapidly across eastern North Carolina during the afternoon and evening of September 3rd. The first of two tornadoes spawned by this system developed over Emerald Isle on Bogue Banks in the Camp Ocean Forest area around 10:30 pm producing minor damage. Several storage sheds were overturned, a porch was destroyed and a mobile home was knocked off it's foundation. The tornado then crossed   Bogue Sound and moved into the community of Bogue approximately 10:35 pm where the tornado moved across the Stone Gate subdivision where it again caused minor damage. Several pine trees were snapped off, and 10 to 15 mobile homes had underskirting partially missing. A camper shell was tore off a truck which was subsequently overturned and another camper unit was destroyed.									
<b>Hyde County</b> Ocracoke	03	2145EST	0.2	25	0	0	200K		<b>Tornado (F1)</b>
The second and strongest of the two tornadoes produced by the remnants of Hurricane Earl only touched down for an instant, but									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## NORTH CAROLINA, Central Coastal

not before it destroyed one house and severely damaged another. An eyewitness in a nearby rental cottage reported hearing a loud noise in the direction of the house and saw a tornado touch down and lift the building 20-25 feet off its foundation, at which point the home exploded. The storm then struck another house causing roof damage.

### NCZ095

#### **Carteret**

**04 0200EST**

**0**

**0**

**High Wind (G45)**

The remnants of Hurricane Earl produced gale force winds along the coast of eastern North Carolina early in the morning on September 4th. The strong winds caused three steel hulled trawlers to break loose from their moorings and smash into the Grayden Paul drawbridge in Beaufort. The ships broke a piling and a cap on the main support beam under the east bound lane causing traffic delays for several days.

#### **Greene County Walstonburg**

**08**

**1155EST**

**0**

**0**

**Hail (0.75)**

#### **Pitt County Farmville**

**08**

**1202EST**

**0**

**0**

**Hail (1.00)**

#### **Pitt County Bell Fork**

**08**

**1225EST**

**0**

**0**

**Hail (1.00)**

#### **Lenoir County La Grange**

**08**

**1241EST**

**0**

**0**

**Hail (0.75)**

A strong cold front moving southeast across eastern North Carolina produced scattered severe thunderstorms with large hail, torrential downpours and frequent lightning on the afternoon of the 8th.

#### **Carteret County 1 S Salter Path**

**30**

**0747EST  
0820EST**

**0**

**0**

**Waterspout**

Several waterspouts were reported off the beaches of Emerald Isle and Salter Path on the morning of the 30th.

## NORTH CAROLINA, Extreme Southwest

#### **Cherokee County**

##### **Andrews Murphy Arpt**

**06**

**1730EST**

**0**

**0**

**7K**

**Thunderstorm Wind**

Plane blown over.

#### **Cherokee County**

##### **Andrews Murphy Arpt**

**06**

**1730EST**

**0**

**0**

**Hail (1.00)**

## NORTH CAROLINA, North Coastal

NONE REPORTED.

## NORTH CAROLINA, Northwest and North Central

NONE REPORTED.

## NORTH CAROLINA, South Coastal

#### **Pender County**

##### **6 E Burgaw to 6 W Maple Hill**

**01**

**0000EST  
0100EST**

**0**

**0**

**Flash Flood**

On August 31, slow moving thunderstorms added water to recent rains from Hurricane Bonnie, causing Holly Shelter Creek to spill onto highway US53. The creek remained out of its banks during the early morning hours.

#### **Brunswick County Long Beach**

**03**

**1431EST**

**0**

**0**

**Thunderstorm Wind (G63)**

#### **Brunswick County Southport**

**03**

**1515EST  
1900EST**

**0**

**0**

**Flash Flood**

#### **New Hanover County South Wilmington**

**03**

**1515EST  
1830EST**

**0**

**0**

**Flash Flood**

#### **Brunswick County 13 NW Supply**

**03**

**1855EST**

**0**

**0**

**Thunderstorm Wind (G65)**

The remnants of Hurricane Earl, which came ashore as a Tropical Storm on the Gulf Coast of Florida, passed over southeast North Carolina during the day and evening. Onshore winds along the Brunswick County coast drove seas up the beaches, causing minor erosion, while embedded thunderstorms caused wind gusts recorded as high as 70 MPH at Long Beach, and downed trees on NC 211 near the Columbus County line. Winds were generally less than 40 MPH across the area. Rainfall accumulations in Southeast North Carolina ranged from 1.5 to 4 inches, but this rain fell on ground still draining rain from Hurricane Bonnie on 8/26, resulting in flooding of some low-lying areas.



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>NORTH CAROLINA, South Coastal</u></b>									
<b>Bladen County</b>									
Tar Heel	08	1338EST 1345EST			0	0			Hail (1.00)
<b>Bladen County</b>									
Tar Heel	08	1338EST 1350EST			0	0			Hail (1.00)
<b>Pender County</b>									
Willard to Burgaw	08	1425EST 1435EST			0	0			Hail (1.75)
<b>Pender County</b>									
Willard to Burgaw	08	1427EST 1435EST			0	0			Hail (1.75)
A thunderstorm moved south across northern Pender County, dropping large hail.									
<b>Columbus County</b>									
Lake Waccamaw to Riegelwood	08	1439EST 1455EST			0	0			Hail (0.75)
Hail reports came from Lake Waccamaw and near Chadbourn, where a 52 MPH gust was measured, and a funnel cloud was reported sighted at Riegelwood.									
<b>New Hanover County</b>									
4 N Wilmington	08	1510EST			0	0			Hail (0.75)
<b>New Hanover County</b>									
Wilmington	08	1525EST 1530EST			0	0	15K		Thunderstorm Wind (G80)
As a cold front moved through the area, hail was reported in the northern part of the county, and a thunderstorm microburst lifted roofing from 3 buildings near the corner of Oleander and College. Funnel cloud sightings were reported at the damage site and at the NC State Port.									
<b>New Hanover County</b>									
5 NE Kirkland	08	1530EST 1535EST			0	0			Waterspout
A commercial fisherman reported a waterspout sighting associated with cold front thunderstorms.									
<b>New Hanover County</b>									
1.5 W Kure Beach to 1 E Carolina Beach	30	1025EST 1045EST			0	0			Waterspout
Waterspouts were first sighted over the Cape Fear River from the Sunny Point Army Terminal, and later over the ocean from Kure Beach and Carolina Beach.									
<b><u>NORTH CAROLINA, Southwest</u></b>									
<b>Union County</b>									
Monroe	03	1600EST 2000EST			0	0			Flood
<b>Mecklenburg County</b>									
5 S Charlotte	03 04	2300EST 0200EST			0	0			Flood
Duration rain from the remnants of Tropical Storm Earl caused some flooding problems in the Southern Piedmont. In Union County, 10 to 15 roads were closed at one point - some in non-flood-prone areas. A couple of cars were washed off the road during the height of the flooding. In the southern part of Charlotte, roads and streets were flooded in the typical areas. High water lingered in both counties until at least 9 am the next morning.									
<b>Burke County</b>									
Rutherford College	06	1442EST			0	0			Thunderstorm Wind (G50)
<b>Burke County</b>									
Morganton	06	1615EST			0	0			Hail (0.75)
<b>Burke County</b>									
Morganton	06	1615EST 1620EST			0	0			Thunderstorm Wind (G50)
<b>Burke County</b>									
Morganton	06	1615EST 1800EST			0	0			Urban/Sml Stream Fld
<b>Cleveland County</b>									
Casar	06	1730EST 1735EST			0	0			Thunderstorm Wind (G50)
A couple of severe thunderstorms moved from the foothills into a small part of the piedmont. Trees were downed in several									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## NORTH CAROLINA, Southwest

locations and dime size hail fell in the same general areas according to county communication centers and spotters. In Morganton, heavy rainfall also caused some urban flooding.

### **Cleveland County** 2 E Shelby

07	1552EST 1555EST			0	0				Hail (0.75)
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An amateur radio spotter observed large hail for several minutes.

### **Rowan County** East Spencer

08	0930EST			0	0	10K			Thunderstorm Wind (G50)
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### **Cabarrus County** 2 NE Harrisburg to 3 NE Harrisburg

08	1150EST 1153EST			0	0	25K			Thunderstorm Wind (G60)
----	--------------------	--	--	---	---	-----	--	--	-------------------------

In East Spencer a marginally severe thunderstorm caused at least one tree to fall; it fell on a car and house causing some substantial damage. A stronger, near tornadic, storm developed across northern Mecklenburg County and caused damage in Cabarrus County. A v-shaped damage pattern across about a mile included damage to a fire station, a church, and a number of trees. Underpinning was blown out of mobile homes in the same area.

### **Mcdowell County** Old Ft

28	1415EST 1420EST			0	0				Hail (0.75)
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### **Mcdowell County** Old Ft

28	1415EST 1420EST			0	0				Thunderstorm Wind (G50)
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### **Catawba County** Hickory

28	1555EST 1557EST	0.2	25	0	0	20K			Tornado (F0)
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### **Catawba County** 10 E Hickory to Claremont

28	1609EST 1625EST			0	0	10K			Thunderstorm Wind (G52)
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### **Catawba County** 10 E Hickory

28	1615EST 1620EST			0	0				Hail (1.00)
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A severe thunderstorm caused some large hail and damaging wind in McDowell County where trees were blown down and blocked I-40. The Fire Chief reported hail up to dime size in the same area.

A stronger storm developed in southern Caldwell County and quickly moved into western and northern Catawba County where it became severe. An employee of an auto dealership reported a small tornado moved quickly from the northwest across the dealership causing damage to the building and several cars. This was likely a "gustnado" type of tornado. Farther east, wind damage caused numerous trees and power lines to fall - especially in the Conover and Claremont areas. Large hail was also observed.

## NORTH DAKOTA, Central and West

NONE REPORTED.

## NORTH DAKOTA, East

### **Ransom County** 4 SW Englevale

25	2025CST			0	0				Hail (0.88)
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### **Ransom County** 8 SW Lisbon

25	2036CST			0	0				Hail (0.88)
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### **Ransom County** Lisbon

25	2045CST			0	0				Hail (0.88)
----	---------	--	--	---	---	--	--	--	-------------

The hail was 5 inches deep in Lisbon, requiring a plow to clear the streets.

### **Ransom County** 5 E Lisbon

25	2050CST			0	0				Hail (1.75)
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### **Cass County** Leonard

25	2130CST			0	0				Hail (0.75)
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### **Richland County** 3.5 SE Christine

25	2145CST			0	0	5K			Thunderstorm Wind
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A 50 foot tall radio tower was blown down in the strong wind.

### **Richland County** Colfax

25	2145CST			0	0	5K			Thunderstorm Wind
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Two large railroad crossing arms were blown over in the wind.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b>OHIO, East</b>									
<b>Belmont County</b>									
St Clairsville	07	0715EST			0	0	5K		Thunderstorm Wind
									Thunderstorm winds downed several trees and power lines.
<b>Belmont County</b>									
St Clairsville	07	0730EST			0	0	2K		Thunderstorm Wind
									Thunderstorm winds downed a large tree and snapped power lines.
<b>Coshocton County</b>									
Wakatomika	27	1708EST			0	0			Hail (0.75)
<b>Muskingum County</b>									
Adamsville	27	1715EST			0	0			Hail (1.75)
<b>Muskingum County</b>									
Otsego	27	1716EST			0	0			Hail (0.75)
<b>Muskingum County</b>									
Zanesville	27	2125EST			0	0	5K		Thunderstorm Wind
									Thunderstorm winds downed several trees and power lines along Newark Road.
<b>OHIO, North</b>									
<b>Lucas County</b>									
Toledo	07	0330EST			0	0	2K		Thunderstorm Wind
									A few large branches were downed.
<b>Ottawa County</b>									
Graytown	07	0415EST			0	0	45K		Lightning
									Lightning struck a barn. The ensuing fire destroyed the barn and its contents.
<b>Seneca County</b>									
Attica	07	0435EST			0	0		5K	Hail (0.75)
									Some crops were damaged.
<b>Lorain County</b>									
Countywide	07	0535EST			0	0	15K		Thunderstorm Wind
									Many trees were downed.
<b>Cuyahoga County</b>									
Countywide	07	0545EST			0	0	15K		Thunderstorm Wind
									Several trees were downed, especially in Parma and in the southeast corner of the county.
<b>Medina County</b>									
Medina	07	0548EST			0	0		5K	Hail (0.75)
									Large hail fell east of the city of Medina. Some crops were damaged.
<b>Summit County</b>									
Countywide	07	0600EST			0	0	100K		Thunderstorm Wind
									Numerous trees, large limbs and power lines were downed. In Munroe Falls, a tree fell on a house. In Stow, large limbs were downed on at least two vehicles and through the roof of a house.
<b>Medina County</b>									
Hinckley	07	0600EST			0	0	5K		Thunderstorm Wind
									Trees and branches were downed.
<b>Summit County</b>									
Copley	07	0608EST			0	0			Hail (0.75)
<b>Portage County</b>									
Countywide	07	0620EST			0	0	30K		Thunderstorm Wind
									Many trees, power lines and power poles were downed, especially in Kent.
<b>Geauga County</b>									
Countywide	07	0620EST			0	0	30K		Thunderstorm Wind
									Many trees and power lines were downed, particularly in Bainbridge and in Auburn Township. At least one tree was downed on a car.
<b>Mahoning County</b>									
Countywide	07	0635EST			0	0	30K		Thunderstorm Wind
									Numerous trees and power lines were downed.
<b>Trumbull County</b>									
Countywide	07	0645EST			0	0	25K		Thunderstorm Wind
									Many trees, large branches and power lines were downed, especially in the southeast portion of the county.

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
OHIO, North									
Mahoning County Boardman	07	0658EST			0	0			Hail (0.75)
Hancock County Van Buren	20	1645EST			0	0	20K	5K	Thunderstorm Wind
Large branches and at least one tree were downed. A corn field was blown down and awnings were damaged at a campground..									
Hancock County Van Buren	20	1645EST			0	0			Hail (0.75)
OHIO, Northwest									
NONE REPORTED.									
OHIO, Southeast									
OHZ083-086>087	Jackson - Gallia - Lawrence								
01		0000EST			0	0			Monthly Rainfall
30		2300EST							
The total monthly rainfall was an inch or less in extreme southeast Ohio. Some representative amounts included Patriot 0.40 inches, Willow Wood 0.41 inches, South Point 0.95, and Jackson 1.07 inches.									
OHZ066>067-075>076-083>087	Perry - Morgan - Athens - Washington - Jackson - Vinton - Meigs - Gallia - Lawrence								
14		1100EST			0	0			Record Heat
15		1800EST							
The hottest temperatures of the summer occurred. Readings reached the mid and upper 90s. Preliminary cooperative observations had 97 degrees as a maximum temperature on the 14th for Athens and Waterloo, Carpenter had 92 degrees, Marietta and Jackson recorded 95. New Lexington reached 92 degrees. The dry weather pattern during the late summer contributed to this unusual mid September heat.									
Perry County Thornville	27	1736EST			0	0			Hail (0.88)
Hail as large as nickels fell.									
OHIO, Southwest									
Madison County 2 W Sedalia	07	1452EST 1500EST			0	0	10K		Thunderstorm Wind (G50)
Numerous trees were downed and siding and shutters were torn off a house.									
Fayette County 2 N Jeffersonville	07	1500EST 1505EST			0	0	10K		Thunderstorm Wind (G50)
Strong winds caused damage to a barn and knocked down several trees.									
Hamilton County Norwood	21	1855EST 2150EST			0	0			Flood
Several hours of heavy rainfall caused Duck Creek to rise out of its banks. Also, several roads were covered by high water.									
Licking County Linnville	27	1715EST 1720EST			0	0	5K		Thunderstorm Wind (G50)
Trees and power lines downed.									
Madison County London	27	1910EST 1915EST			0	0			Hail (0.75)
Franklin County Columbus	27	2010EST 2015EST			0	0	5K		Thunderstorm Wind (G50)
Several power lines were knocked down on the south side of Columbus.									
Licking County Buckeye Lake	27	2015EST 2020EST			0	0			Hail (1.75)
Licking County Pataskala	27	2020EST 2025EST			0	0	5K		Thunderstorm Wind (G50)
Several trees were knocked down by thunderstorm winds.									

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>OKLAHOMA, Eastern</u></b>									
<b>Washington County</b>									
Dewey	01	1945CST			0	0	0.30K		Thunderstorm Wind
Several trees were blown down just west of Dewey. Summary for September 1 1998:									
An isolated severe thunderstorm formed over extreme eastern Osage County and Washington County near Dewey. The storm formed in the vicinity of a weak stationary front. The storm caused some damage to trees. In addition, the Bartlesville airport (KBVO) reported a wind gust of 45 kts (52 mph).									
<b>OKZ060</b>									
<b>Tulsa</b>									
	04	0000CST			0	0			Excessive Heat
2359CST									
The high temperature at the Tulsa International Airport on this date was 107 degrees, tying the previous record high temperature for the date.									
<b>OKZ073</b>									
<b>Pittsburg</b>									
	04	0000CST			0	0			Excessive Heat
07 2359CST									
Each day from September 4-7, 1998, produced record heat at the McAlester Regional Airport (KMLC).									
On September 4, the high temperature reached 110 degrees, not only breaking the daily temperature record but also making this the hottest September day on record in McAlester. In addition, the low temperature for the day was 80 degrees, making this the warmest low temperature on record for the date.									
On September 5, the high temperature reached 102 degrees, breaking the record high temperature for the date. In addition, the low temperature for the day was 81 degrees, making this the warmest low temperature on record for the date. The low of 81 is also the warmest low temperature on record for the month of September in McAlester.									
On September 6, the low temperature of 77 degrees tied for being the warmest low temperature on record for the date.									
On September 7, the high temperature of 102 degrees broke the record high temperature for the date.									
<b>OKZ060</b>									
<b>Tulsa</b>									
	06	0000CST			0	0			Excessive Heat
2359CST									
The low temperature at the Tulsa International Airport (KTUL) for the day was 80 degrees. This is the warmest low temperature on record for this date in Tulsa.									
<b>Cherokee County</b>									
15 W Tahlequah	13	2245CST			0	0			Flash Flood
	14	0400CST							
Low-lying spots on several roads in Sequoyah State Park were flooded. Water was at the edge of the roadway on State Hwy 51.									
<b>Muskogee County</b>									
Ft Gibson	13	2300CST			0	0			Flash Flood
	14	0700CST							
Georgetown Road and several county roads were flooded near Fort Gibson.									
<b>Adair County</b>									
Stilwell	14	0030CST			0	0			Flash Flood
0600CST									
There was one foot of water over some county roads, and low water bridges were flooded.									
<b>Cherokee County</b>									
Tahlequah	14	0030CST			0	0			Flash Flood
0500CST									
Several low-water bridges were flooded and there was other street flooding in and near Tahlequah.									
<b>Ottawa County</b>									
4 W Miami	14	0230CST			0	0			Flash Flood
0600CST									
State Highway 10 west of Miami overflowed with water. Some cars were stranded by the high water. Some low-water bridges and county roads were flooded throughout the county.									
<b>Sequoyah County</b>									
3 N Marble City	14	0300CST			0	0			Flash Flood
0500CST									
Little Sallisaw Creek north of Marble City overflowed a low-water crossing.									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## OKLAHOMA, Eastern

### Delaware County

Kansas

**14 0415CST** **0 0** **Flash Flood**  
**0600CST**

Several county roads were flooded near the town of Kansas.

### Muskogee County

Muskogee

**14 0430CST** **0 0** **Flash Flood**  
**0630CST**

Several low-water bridges were flooded and impassable, while other county roads were flooded near Muskogee.  
Summary of flooding events for September 13-14 1998:

Tropical Storm "Frances" moved onshore the Texas coast on September 11 and moved northward through eastern Texas, bringing much-needed rainfall to eastern Oklahoma by September 12. As is typical with inland tropical systems, the heaviest rainfall took place during the overnight hours, specifically on the early morning of the 13th and again on the 14th.

Rains on the 12th mostly affected southeast Oklahoma and soaked into the soil readily because of the drought that plagued central and southern Oklahoma through July and August. On the 13th, the circulation associated with Frances had nearly dissipated over northeast Texas, but a fetch of deep tropical moisture was established from the Gulf of Mexico right into eastern Oklahoma, bringing widespread 1-3 inch rains to all of eastern Oklahoma early on the 13th. Again, most of this rain soaked into the soil because of the dry preceding conditions. By late on the evening of the 13th, most soils were finally near saturation.

Early on the morning of the 14th, an approaching upper level disturbance combined with the fetch of rich moisture to enhance rainfall in an area roughly following US Hwy 69 from Eufaula to Miami. Overnight rainfall totals of 4 to 5 inches were common in this area with local amounts in excess of 7 inches, causing flash flooding to commence. Most of the flooding involved the inundation of low-water crossings and even some main highways. In addition to the flash flooding described above, the Neosho River at Commerce rose above flood stage on the 15th and 16th.

Some two-day rainfall totals include (in inches): Muskogee Davis Field (MKO)...8.08, Spavinaw Dam...8.07, Oktaha\_2NE...7.42, Webbers Falls\_3S...7.33, Miami\_2NE...7.00, Vinita\_2N...6.72, Checotah...6.70, Wagoner...6.66, Wilburton\_9ENE...6.42, Pryor\_6N...6.24, Jay\_4N...6.13, Sallisaw\_2SSW...6.11, and Delaware\_3SE (Nowata mesonet)...5.52.

## OKZ058

### Ottawa

**14 1700CST** **0 0** **Flood**  
**17 0200CST**

The Neosho River at Commerce rose above the flood stage of 15 feet and then crested at a level of 18.2 feet at 11 AM CDT on September 16.

### Osage County

7 SW Burbank

**21 1945CST** **0 0** **Thunderstorm Wind (G50)**

Measured at Oklahoma mesonet site

### Osage County

Burbank

**21 1956CST** **0 0** **Hail (0.88)**

### Osage County

Burbank

**21 1956CST** **0 0** **Thunderstorm Wind (G52)**

### Osage County

Fairfax

**21 2010CST** **0 0** **Hail (1.75)**

### Osage County

2 E Fairfax

**21 2012CST** **0 0** **Hail (1.75)**

### Creek County

Shamrock

**21 2030CST** **0 0** **Thunderstorm Wind (G61)**

### Creek County

Sapulpa

**21 2055CST** **0 0** **1.5K** **Thunderstorm Wind**

Trees and power lines were blown down near Sapulpa.  
Summary of events for Monday, September 21, 1998:

A broken line of severe thunderstorms developed over central Oklahoma on the evening of Sept. 21 as a cold front approached from the northwest. Some of these severe thunderstorms moved into eastern Oklahoma after 830 PM CDT. One thunderstorm moved southeast through Osage County from Burbank to Fairfax and points southeast along the Arkansas River. This thunderstorm showed signs of strong rotation, but there were no tornadoes reported with this storm. The other storm of concern moved eastward into Creek County around 930 PM CDT, producing severe reports in the form of strong winds from Shamrock to Sapulpa.

By 1000 PM CDT, all of the thunderstorms had weakened below severe limits, but a solid line of thunderstorms continued southeast, moving across the rest of eastern Oklahoma and into western Arkansas by 200 AM. This line produced widespread wind

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## OKLAHOMA, Eastern

gusts of 30 to 45 mph along the way.

### **OKZ060**

#### **Tulsa**

**26 0000CST  
2359CST**

**0 0**

**Excessive Heat**

The Tulsa International Aiport recorded a low temperature for the day of 73 degrees, tying for the warmest low temperature on record for this date.

### **Creek County**

#### **Slick**

**30 1610CST**

**0 0**

**Hail (2.00)**

2-inch hail accompanied by 50 to 60 mph winds.

### **Creek County**

#### **2 E Slick**

**30 1623CST**

**0 0**

**Thunderstorm Wind (G61)**

### **Creek County**

#### **Edna**

**30 1626CST**

**0 0**

**Hail (1.00)**

### **Okmulgee County**

#### **Okmulgee**

**30 1654CST**

**0 0**

**Thunderstorm Wind (G52)**

### **Cherokee County**

#### **Cookson**

**30 1817CST**

**0 0**

**Thunderstorm Wind (G52)**

Location: Blue Top Cafe

Summary of events for September 30 1998:

A strong cold front moving south across eastern Oklahoma and an active upper level pattern caused widespread thunderstorm activity across northeast Oklahoma on the evening of Sept. 30. One thunderstorm became severe as it moved across Creek and Okmulgee Counties between 500 and 630 PM CDT. The storm weakened as it moved across Muskogee County but restrengthened briefly over southern Cherokee County. This storm had a history of 60 to 70 mph winds, and hail as large as hen eggs over southeast Creek County.

## OKLAHOMA, Extreme Southeast

NONE REPORTED.

## OKLAHOMA, Panhandle

### **Beaver County**

#### **3 E Turpin**

**09 1745CST**

**0 0**

**Hail (0.75)**

Hail reported by Beaver County emergency operations center.

## OKLAHOMA, Western, Central and Southeast

NOT RECEIVED.

## OREGON, Central and East

### **Deschutes County**

#### **La Pine**

**08 1255PST  
1300PST**

**0 0**

**Hail (1.75)**

Dime to golfball sized hail fell in La Pine. Windows were broken out.

### **Umatilla County**

#### **Ukiah**

**08 1340PST  
1400PST**

**0 0**

**Heavy Rain**

0.75 inches of rain fell in 20 to 25 minutes.

### **Union County**

#### **North Powder**

**08 1400PST  
1500PST**

**0 0**

**Flash Flood**

A cabinet shop sustained water and mud damage from a flash flood five miles west of North Powder.

### **Union County**

#### **La Grande**

**08 1530PST**

**0 0**

**Lightning**

Lightning truck a tree in the Hillcrest Cemetery. The bolt cut all the bark off one side of the tree in an eight inch strip from the top of the tree to the ground. The strip of bark and wood landed on the ground at a right angle. Some pieces of bark and wood came to rest 100 feet away.

## OREGON, Northwest

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## OREGON, Southeast

### **Baker County**

3 NE Pleasant Vly

07 0700PST

0 0

Wild/Forest Fire

Lightning caused a range fire near Pleasant Valley in Baker County. The fire burned 2,600 acres before being brought under control with 14 fire trucks and five air tanker drops. No damage was reported.

### **Malheur County**

Vale

08 1600MST

0 0

Thunderstorm Wind (G50)

A severe thunderstorm toppled trees near Vale, Oregon.

## OREGON, Southwest

ORZ008-008-015

### **Rogue Basin - South Central Oregon**

27 1730PST

0 0

High Wind (G52)

1839PST

Strong gust fronts from collapsing thunderstorms spread across Lake, Klamath, Jackson, and Josephine counties on the evening of 09/27/98. Wind gusts to 60 mph were reported...but damage was mostly light.

## PACIFIC

NOT RECEIVED.

## PENNSYLVANIA, Central

### **Montour County**

Washingtonville

02 1435EST

0 0

Thunderstorm Wind (G51)

Trees were blown down on Route 54 just north of Washingtonville.

### **Sullivan County**

Sonestown

02 1435EST

0 0

Thunderstorm Wind (G51)

Trees were blown down on the road just north of Elk Grove.

### **Tioga County**

Wellsboro

07 0320EST

0 0

Hail (0.75)

### **Elk County**

Ridgway

07 0825EST

0 0

Thunderstorm Wind (G51)

Numerous trees blown down from Ridgway to St. Marys.

### **Clearfield County**

Sabula

07 0837EST

0 0

Thunderstorm Wind (G51)

Trees blown down in Sabula and Grampian.

### **Cameron County**

Emporium

07 0852EST

0 0

Thunderstorm Wind (G51)

Trees and powerlines blown down.

### **Somerset County**

Windber

07 0900EST

0 0

Thunderstorm Wind (G51)

Trees and powerlines were down in Windber, Jennerstown, and Boswell.

### **Potter County**

Austin

07 0930EST

0 0

Thunderstorm Wind (G51)

Limbs and powerlines blown down in Austin. Large stand of pine trees knocked down at a tree farm in Wharton.

### **Tioga County**

Morris

07 0945EST

0 0

Thunderstorm Wind (G51)

Trees blown down.

### **Cambria County**

Ebensburg

07 0955EST

0 0

Thunderstorm Wind (G51)

Trees were down from Ebensburg to Johnstown.

### **Lycoming County**

Williamsport

07 1007EST

0 0

Hail (0.75)

### **Mifflin County**

Lewistown

07 1012EST

0 0

Thunderstorm Wind (G51)

Trees blown down.

### **Mifflin County**

Milroy

07 1012EST

0 0

Hail (0.75)

### **Juniata County**

Mc Coysville

07 1015EST

0 0

Thunderstorm Wind (G51)

Trees and powerlines were blown down.



# Storm Data and Unusual Weather Phenomena

September 1998								
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Estimated Damage Injured	Property Crops	Character of Storm
<b><u>PENNSYLVANIA, Central</u></b>								
<b>Lycoming County</b>								
<b>Muncy</b>	<b>07</b>	<b>1022EST</b>			<b>0</b>	<b>0</b>		<b>Hail (2.25)</b>
			Quarter to tennis ball sized hail 2 miles south of Muncy.					
<b>Snyder County</b>								
<b>Mc Clure</b>	<b>07</b>	<b>1025EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Trees blown over and powerlines knocked down onto a car.					
<b>Sullivan County</b>								
<b>Laporte</b>	<b>07</b>	<b>1027EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Numerous trees downed from LaPorte to Sonestown.					
<b>Union County</b>								
<b>Mifflinburg</b>	<b>07</b>	<b>1027EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Numerous trees blown down from Mifflinburg to Lewisburg.					
<b>Northumberland County</b>								
<b>Watsontown</b>	<b>07</b>	<b>1032EST</b>			<b>0</b>	<b>0</b>		<b>Hail (1.75)</b>
			Golf ball sized hail reported near Watsontown.					
<b>Perry County</b>								
<b>Blain</b>	<b>07</b>	<b>1035EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Trees and powerlines down.					
<b>Columbia County</b>								
<b>Jerseytown</b>	<b>07</b>	<b>1041EST</b>			<b>0</b>	<b>0</b>		<b>Hail (0.88)</b>
<b>Juniata County</b>								
<b>Thompsontown</b>	<b>07</b>	<b>1042EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Trees blown down.					
<b>Montour County</b>								
<b>Danville</b>	<b>07</b>	<b>1046EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Widespread trees and powerlines blown down.					
<b>Cumberland County</b>								
<b>Mechanicsburg</b>	<b>07</b>	<b>1056EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G58)</b>
			A 67mph thunderstorm gust was reported in Mechanicsburg. Trees were blown down on a couple of cars in Hogestown.					
<b>Dauphin County</b>								
<b>Harrisburg</b>	<b>07</b>	<b>1101EST</b>			<b>0</b>	<b>4</b>		<b>Thunderstorm Wind (G51)</b>
			Winds damaged tents at the Kipona Arts Festival in Harrisburg. Four people were injured. Many trees were down in the area.					
<b>Dauphin County</b>								
<b>Harrisburg Intl Arpt</b>	<b>07</b>	<b>1107EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G58)</b>
			67mph thunderstorm gust recorded by Middletown Airport Observer.					
<b>York County</b>								
<b>York</b>	<b>07</b>	<b>1120EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Trees and powerlines down in York.					
<b>Schuylkill County</b>								
<b>Tamaqua</b>	<b>07</b>	<b>1124EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Windows were blown out of a house. A store wall collapsed onto 3 cars. Numerous trees and wires were down. Parts of roofs taken off 2 homes.					
<b>Dauphin County</b>								
<b>Hummelstown</b>	<b>07</b>	<b>1125EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Trees were blown down in Hummelstown and Hershey, closing several roads. A camper was crushed by a tree, but no one was in the camper at the time.					
<b>Lebanon County</b>								
<b>Lebanon</b>	<b>07</b>	<b>1131EST</b>			<b>0</b>	<b>0</b>		<b>Hail (0.75)</b>
<b>Lancaster County</b>								
<b>Manheim</b>	<b>07</b>	<b>1140EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			Three walls of construction at Calvary Church collapsed.					
<b>Lancaster County</b>								
<b>Lancaster</b>	<b>07</b>	<b>1200EST</b>			<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G51)</b>
			58mph thunderstorm gust recorded at Lancaster Airport.					
<b>Franklin County</b>								
<b>South Portion</b>	<b>08</b>	<b>1730EST 2300EST</b>			<b>0</b>	<b>0</b>		<b>Flash Flood</b>
			Up to 3 inches of rain was reported in Greencastle and several roads were closed due to flooding.					

# Storm Data and Unusual Weather Phenomena

										September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm	
<b><u>PENNSYLVANIA, Central</u></b>										
<b>Warren County</b>										
<b>Warren</b>	<b>27</b>	<b>1530EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees and powerlines down.										
<b>Clearfield County</b>										
<b>Du Bois</b>	<b>27</b>	<b>1550EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees down.										
<b>Clearfield County</b>										
<b>Woodland</b>	<b>27</b>	<b>1610EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees were down near the Woodland exit of I-80.										
<b>Mckean County</b>										
<b>Lafayette</b>	<b>27</b>	<b>1615EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees down in Lafayette Township.										
<b>Cameron County</b>										
<b>Sizerville</b>	<b>27</b>	<b>1655EST</b>			<b>0</b>	<b>0</b>				<b>Tstm Wind/Hail</b>
A couple of trees were down and 1 inch hail fell in Sizerville.										
<b>Centre County</b>										
<b>Zion</b>	<b>27</b>	<b>1700EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees and powerlines were down in Zion and Lamar.										
<b>Potter County</b>										
<b>Austin</b>	<b>27</b>	<b>1700EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees and powerlines down in Sylvania Township.										
<b>Clinton County</b>										
<b>Avis</b>	<b>27</b>	<b>1711EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
A roof was blown off a house in Avis.										
<b>Lycoming County</b>										
<b>Jersey Shr</b>	<b>27</b>	<b>1712EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees were down on a house and power poles were snapped.										
<b>Cambria County</b>										
<b>Patton to     St Augustine</b>	<b>27</b>	<b>1725EST 1735EST</b>	<b>7</b>	<b>100</b>	<b>0</b>	<b>0</b>				<b>Tornado (F1)</b>
An F1 tornado with peak winds probably less than 80mph touched down on high ground just west of Patton, uprooting trees along a 100-yard path through the town of Patton, and east along a 7-mile track of intermittent damage to the small community of St. Augustine. Most of the damage in Patton was confined to snapped and uprooted trees. Just east of St. Augustine, the storm lifted the east side of a barn roof off the support beams and set it back down. Buckwheat flattened south of the barn had evidence of vortex swirls. A large pen containing game pheasants had plastic netting blown off and rolled up in a ball to the north of the pen. A couple dozen pheasants were killed, and a fair number flew away. Just north of that farm, a 2100 gallon water drum was lifted off a platform and blown about 1/4-mile east. At the farm east of St. Augustine, eyewitnesses told of the approach of the weather, with lightning, then rain becoming progressively heavy, followed by hail, then horizontal rain and high winds. One person said rain blew in the open windows on every side of her house.										
<b>Union County</b>										
<b>New Columbia</b>	<b>27</b>	<b>1725EST 1735EST</b>	<b>2.5</b>	<b>400</b>	<b>0</b>	<b>0</b>				<b>Tornado (F1)</b>
An F1 tornado touched down about 4 miles northwest of New Columbia and moved southeast for about 2.5 miles, taking down trees, damaging a couple of barns, and flattening some corn. The tornado was embedded in a large area of downburst winds, running roughly parallel to Interstate 80 from 8 miles northwest of New Columbia, eastward into White Deer Furnace. Hundreds, even thousands, of trees were downed just south of I-80 on Sugar Valley Narrows and White Deer Pike into White Deer Furnace. Three barns had portions of roofs removed, and the west side of a metal silo was buckled in by the force of the wind. Several small sheds were blown over and one house received damage from falling trees. Some siding from another house was peeled.										
<b>Northumberland County</b>										
<b>Mc Ewensville</b>	<b>27</b>	<b>1740EST 1745EST</b>	<b>1.2</b>	<b>704</b>	<b>0</b>	<b>0</b>				<b>Tornado (F1)</b>
An F1 tornado touched down about 3 miles southeast of McEwensville, or 3 miles east of Milton. The storm moved southeast across farmland, taking down trees, ripping parts of roofs from two barns, and puncturing a tree limb through the wall of a farm house. Eyewitnesses told of the onset of rain, then heavy rain, followed by hail the size of a dime to quarter size, and then the strong winds.										
<b>Blair County</b>										
<b>Altoona</b>	<b>27</b>	<b>1758EST</b>			<b>0</b>	<b>0</b>				<b>Thunderstorm Wind (G51)</b>
Trees were down and 3/4" hail was reported.										

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## PENNSYLVANIA, Central

### **Montour County**

#### **Danville**

27 1800EST

0

0

Thunderstorm Wind (G51)

A roof was blown off a garage onto a car in Danville.

## PENNSYLVANIA, East

NOT RECEIVED.

## PENNSYLVANIA, Northeast

### **Luzerne County**

#### **Nuangola Station**

02 1600EST

0

0

15K

Thunderstorm Wind

A thunderstorm briefly intensified to severe limits across southern portions of the county. Several trees and wires were knocked down in Rice Township, mainly near Nuangola Station. Some small road signs were taken out by the falling trees.

### **Bradford County**

#### **Orwell**

07 0326EST

0

0

10K

Thunderstorm Wind

A thunderstorm intensified briefly to severe limits over northern sections of the county. Several trees and wires were downed in the town of Orwell shortly before 430 am EDT.

### **Wayne County**

#### **Girdland**

07 0415EST

0

0

25K

Hail (2.00)

A thunderstorm intensified rapidly over central portions of the county during the pre-dawn hours. The cell produced hail ranging from dime sized to as large as 2 inches in diameter in the town of Girdland. The larger hailstones inflicted some damage to homes and automobiles. A few cars had cracked windshields and some small windows on the upper level of homes were smashed. Briefly strong wind gusts toppled a few trees as well.

### **Bradford County**

#### **Rome**

07 1045EST

0

0

10K

Thunderstorm Wind

A line of thunderstorms began to intensify over northern and eastern sections of the county late in the morning. One cell reached severe limits just before 12 noon EDT. Several trees and also some power lines were downed in the town of Rome.

### **Wyoming County**

#### **Meshoppen**

07 1100EST

0

0

15K

Thunderstorm Wind

The same line of thunderstorms that produced isolated severe weather in eastern Bradford county continued eastward into Wyoming county. Widely scattered reports of wind damage were again associated with the storms in the northwestern corner of the county. Large tree limbs were downed and a few tents sustained minor damage at the county Fairgrounds in Meshoppen close to 12 noon EDT.

### **Luzerne County**

#### **Hunlock Creek to Pittston**

07 1110EST  
1130EST

0

0

200K

Thunderstorm Wind (G65)

A line of thunderstorms which produced isolated wind damage upstream in Bradford and Wyoming counties intensified further as it moved through Luzerne county early in the afternoon. Widespread wind damage occurred as the storms swept eastward through the region.

The storm entered western portions of the county just after 12 noon EDT. Many trees were uprooted or otherwise toppled and utility poles were downed in Hunlock Creek, Lehman Township, Nanticoke, and Glen Lyon between 1210 and 1220 pm. The storms then took aim on the Wyoming Valley and inflicted further damage across more densely populated metropolitan areas near Wilkes-Barre. Between 1220 and 1230 pm EDT, strong damaging winds and large hail were experienced by those in northeastern sections of the county. Streets were littered with downed trees and wires, as well as warped traffic signals in Kingston, Hanover, and downtown Wilkes-Barre. In Pittston Township, a large swath of trees was cut down near Pittston Regional High School. At the Wilkes-Barre Scranton International Airport, wind gusts were officially measured at 74 mph. Also, dime sized hail was observed by control tower personnel.

Pennsylvania Power and Light Company estimates that tens of thousands of customers were without power during the height of the storm early in the afternoon on Labor Day.

### **Pike County**

#### **6 SE Blooming Grove**

07 1210EST

0

0

25K

Thunderstorm Wind

The same complex of thunderstorms that produced widespread wind damage earlier in the afternoon across the Wilkes-Barre metropolitan area briefly reintensified over southern sections of Pike county. Many trees and power lines were downed in Porter and Lehman townships near route 402 within the Delaware State Forest just after 100 pm EDT. Portions of route 402 were closed for several hours that afternoon until crews were able to clear fallen trees and live wires.

### **Bradford County**

#### **Sayre to Athens**

27 1325EST  
1330EST

0

0

20K

Thunderstorm Wind

A line of severe thunderstorms which produced wind damage upstream across the southern tier of New York earlier in the afternoon dipped into northern Bradford county. Isolated occurrences of wind damage resulted.

State police officials reported several trees and utility poles downed in Sayre around 225 pm and a few more trees toppled in Athens at about 230 pm EDT.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## PENNSYLVANIA, Northeast

### **Susquehanna County**

<b>Little Meadows to 3 E Little Meadows</b>	<b>27</b>	<b>1345EST 1350EST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Thunderstorm Wind</b>
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The same line of thunderstorms that produced isolated damage in northern Bradford county earlier in the afternoon continued eastward through the northern tier of Susquehanna county just south of the state line.

More isolated wind damage accompanied these storms. State police officials again observed the downing of a few trees in Little Meadows along route 858 at about 245 pm EDT. A short time later, the storm blew over a few more trees in the Silver Lake area. Portions of route 167 had to be closed for a brief time period until fallen trees could be cleared from the roadway.

## PENNSYLVANIA, Northwest

### **Erie County**

<b>Erie</b>	<b>03</b>	<b>1205EST 1230EST</b>			<b>0</b>	<b>0</b>			<b>Waterspout</b>
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Several waterspouts were reported on Lake Erie north of the city of Erie. They did not come ashore and did not cause any damage.

### **Crawford County**

<b>Conneaut Lake</b>	<b>07</b>	<b>0655EST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>Thunderstorm Wind</b>
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A tree was downed on a trailer and a few trees were downed near Meadville.

### **Erie County**

<b>Erie</b>	<b>27</b>	<b>1417EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Hail (1.00)</b>
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Some crops were damaged.

## PENNSYLVANIA, West

### **Mercer County**

<b>Sharon</b>	<b>07</b>	<b>0658EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed several large trees.

### **Mercer County**

<b>New Lebanon to 3 E New Lebanon</b>	<b>07</b>	<b>0710EST</b>			<b>0</b>	<b>0</b>	<b>80K</b>		<b>Thunderstorm Wind</b>
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Microburst winds estimated at up to 70 MPH downed between 40 to 50 trees. A few outbuildings were destroyed. Some minor roof damage to homes was noted. Several cars were damaged by falling trees. The majority of damage was centered along Mill Creek.

### **Lawrence County**

<b>New Wilmington</b>	<b>07</b>	<b>0715EST</b>			<b>0</b>	<b>0</b>	<b>1K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed several large tree limbs.

### **Venango County**

<b>Oil City</b>	<b>07</b>	<b>0735EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed numerous trees across the Oil City area.

### **Butler County**

<b>Haysville</b>	<b>07</b>	<b>0748EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed a large tree.

### **Beaver County**

<b>Aliquippa</b>	<b>07</b>	<b>0740EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed a tree and several power lines.

### **Washington County**

<b>Bishop</b>	<b>07</b>	<b>0758EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed several trees.

### **Clarion County**

<b>Clarion</b>	<b>07</b>	<b>0808EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed a large tree.

### **Allegheny County**

<b>Penn Hills</b>	<b>07</b>	<b>0810EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed several trees.

### **Westmoreland County**

<b>Greensburg</b>	<b>07</b>	<b>0835EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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A spotter reported a thunderstorm gust to 60 MPH.

### **Fayette County**

<b>4 E Connellsville</b>	<b>07</b>	<b>0845EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds downed several large tree limbs.

### **Westmoreland County**

<b>Ligonier</b>	<b>07</b>	<b>0855EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds blew a large tree down onto several power lines.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## PENNSYLVANIA, West

### **Fayette County**

7 SW Farmington

07 1755EST

0

0

10K

Thunderstorm Wind

A microburst downed a swath of trees 50 yards wide by 200 yards long.

### **Fayette County**

Uniontown to  
Fairchance

19 1645EST  
1800EST

0

0

50K

Flash Flood

Flooding was reported in 15 basements, and between 10 to 15 people were rescued from their vehicles between Uniontown and Fairchance.

### **Mercer County**

Mercer

27 1530EST

0

0

10K

Thunderstorm Wind

Thunderstorm winds blew a tree down onto a house.

### **Mercer County**

Grove City

27 1550EST

0

0

Hail (0.75)

### **Mercer County**

Grove City

27 1550EST

0

0

10K

Thunderstorm Wind

Thunderstorm winds downed several trees, some onto powerlines. One tree fell onto a porch.

### **Butler County**

Harrisville

27 1602EST

0

0

Hail (0.75)

### **Armstrong County**

Templeton

27 1643EST

0

0

Hail (0.75)

### **Armstrong County**

Dayton

27 1650EST

0

0

Hail (0.75)

### **Armstrong County**

Dayton

27 1650EST

0

0

2K

Thunderstorm Wind

Thunderstorm winds downed several large tree limbs.

### **Clarion County**

Elk City

27 1655EST

0

0

20K

Thunderstorm Wind

Thunderstorm winds destroyed a shed and blew the windows out of a house. Several trees were also downed.

### **Indiana County**

Plumville

27 1705EST

0

0

Thunderstorm Wind (G52)

A spotter reported a thunderstorm gust to 60 MPH.

## PUERTO RICO

### **Guayama**

Guayama

02 0800AST  
0815AST

0

0

Funnel Cloud

A funnel cloud was observed off shore from Guayama coast.

### **Aguadilla**

San Sebastian

02 1400AST  
1600AST

0

0

Flash Flood

### **Arecibo**

Lares

02 1400AST  
1600AST

0

0

20K

Flash Flood

### **Mayaguez**

San German

02 1400AST  
1600AST

0

0

Flash Flood

A small stream in Lares went out of its banks flooding nearby houses. In San German and San Sebastian other streams were also reported out of their banks. Landslides were reported in San German.

### **San Juan**

San Juan

02 1400AST  
1530AST

0

0

Urban/Sml Stream Fld

Civil Defense reported urban and street flooding in San Juan.

### **Mayaguez**

Mayaguez to  
Hormigueros

03 1030AST  
1330AST

0

0

Urban/Sml Stream Fld

Various roads in Mayaguez and Hormigueros were impassable due to the rains.

### **Mayaguez**

San German to  
Cabo Rojo

05 1400AST  
1600AST

0

0

Urban/Sml Stream Fld

Several roads in Cabo Rojo and San German were flooded. In Cabo Rojo, Boqueron and Monte Grande sectors experienced

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>PUERTO RICO</u></b>									
			localized flooding.						
<b>Aguadilla</b> Southeast Portion	06	1300AST 1700AST			0	0			Flash Flood
<b>Mayaguez</b> South Portion	06	1300AST 1700AST			0	0			Flash Flood
			A river in San Sebastian was out of its banks flooding a nearby road. Landslides were observed in Moca. Various streets in Cabo Rojo and Hormigueros were impassable due to fallen trees.						
<b>Aguadilla</b> Moca	07	1300AST 1500AST			0	0			Urban/Sml Stream Fld
			Urban flooding was observed over Moca.						
<b>Aguadilla</b> Quebradillas	08	1300AST 1500AST			0	0	10K		Urban/Sml Stream Fld
			A few streets and homes were partially flooded in Quebradillas.						
<b>Humacao</b> Humacao	08	1700AST 1900AST			0	0	10K		Urban/Sml Stream Fld
			Three houses were partially flooded in Junquitas sector in Humacao.						
<b>Mayaguez</b> Mayaguez	12	1500AST 1730AST			0	0			Urban/Sml Stream Fld
			Urban flooding was observed in downtown Mayaguez.						
<b>Aguadilla</b> Aguadilla	13	1300AST 1500AST			0	0			Urban/Sml Stream Fld
			Street flooding and over Campo Alegre sector were reported across Aguadilla.						
<b>Guayama</b> Maunabo	15	1000AST 1300AST			0	0			Heavy Rain
			Puerto Rico Traffic News indicated road 901 in Maunabo closed due to landslides.						
<b>Aguadilla</b> Aguadilla	18	1300AST 1500AST			0	0			Urban/Sml Stream Fld
			Urban flooding was observed over Victoria and Caimital Bajo sectors in Aguadilla.						
<b>San Juan</b> San Juan	18	1500AST 1800AST			0	0			Urban/Sml Stream Fld
			Puerto Nuevo river overflows its banks flooding nearby sectors.						
<b>Guayama</b> Patillas	21	0945AST 1000AST			0	0			Waterspout
			Residents of Patillas observed two waterspouts offshore waters.						
<b>PRZ005-013-069-097-113-123-127</b>			<b>Aguadilla - Arecibo - Humacao - Mayaguez - Ponce - Guayama - San Juan</b>						
	21 22	1200AST 1000AST			0	0	1.7B	301M	Hurricane
			Hurricane Georges began affecting Puerto Rico about 1200 noon with wind gusts to tropical storm force. By 600 pm most of the east sectors of Puerto Rico were experienced hurricane force winds. Landfall occurred at around 700 pm in the vicinity of Yabucoa-Humacao and continued to move west crossing the island from east to west. By 100 am on September 22, Georges exited the island on the southwest coast and entered the Mona Passage.						
			Observed maximum winds from official observation sites were 79 mph sustained wind and 93 mph peak gust at the Luis Munoz Marin International Airport and 90 mph sustained wind and 107 mph peak gust at the U.S. Naval Station Roosevelt Roads in Ceiba. Maximum rainfall in two-day storm total were about 24 inches in Villalba and Adjuntas.						
			Damage to Puerto Rico was enormous. Electricity was lost to 96% of the island customers, while water and sewer service was lost to 75 % of the island customers. It was estimated that at least 50% of the electrical poles and cable were damaged and many roads were impassable due to floods or debris. In the agricultural sectors 75% of its coffee crop, 95% of the plantain and banana crops,						

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## PUERTO RICO

and 65% of live poultry were lost. In addition 28,005 houses mainly those constructed of wood with metal roofs were totally destroyed and 72,605 were partially destroyed. All of the islands 401 shelters were opened during the storm and housed 29,107 people.

### **San Juan Guaynabo**

**26 1800AST  
2000AST** **0 0** **Urban/Sml Stream Fld**

A non National Weather Service Meteorologist reported urban flooding in Guaynabo.

## RHODE ISLAND

### **Kent County Coventry**

**22 0300EST  
1800EST** **0 0** **Heavy Rain**

### **Newport County Tiverton**

**22 0300EST  
1800EST** **0 0** **Heavy Rain**

Rain began during the early morning hours and became heavy at times along with a few thunderstorms. A slow moving cold front extended across southeast Massachusetts and rainfall was enhanced by the remnants of Tropical Storm Hermine as it moved across the offshore waters. There were spotty reports of heavy rainfall. Tiverton reported 2.79 inches while Coventry had 2.15 inches. Other rainfall totals were less than two inches.

### **RIZ002-004**

#### **Southeast Providence - Eastern Kent**

**27 1200EST** **0 0** **Record Heat**

The mercury soared to 86 degrees at the T.F. Green State Airport. This broke the record high for the date of 85 degrees set in 1972.

### **Washington County Narragansett Pier**

**27 2025EST** **0 0** **Thunderstorm Wind (G50)**

A severe thunderstorm downed trees in Narragansett.

## SOUTH CAROLINA, Central

### **Orangeburg County 4 E Orangeburg**

**03 1255EST** **0 0 0 0** **Thunderstorm Wind (G50)**

Highway Maintenance reported several trees down on highway 6.

### **Orangeburg County 3 S Holly Hill to 2.5 S Holly Hill**

**03 1320EST  
1321EST** **0.5 50 0 0 0 0** **Tornado (F0)**

EPD reported two small tornadoes rotating around each other in the swamp east of highway 453.

### **Orangeburg County Holly Hill**

**03 1325EST** **0 0** **Hail (0.88)**

Postal carrier reported nickel size hail in north Holly Hill.

### **Lancaster County 4 W Heath Spgs to Heath Spgs**

**08 1407EST  
1412EST** **0 0 0 0** **Funnel Cloud**

Sheriff deputies tracked funnel cloud and reported no touchdowns.

### **Lancaster County 4 W Heath Spgs**

**08 1407EST** **0 0** **Hail (1.75)**

Sheriff reported golf ball size hail and a funnel cloud.

### **Newberry County Newberry**

**08 1430EST** **0 0 0** **Thunderstorm Wind (G55)**

Sheriff reported trees and powerlines down.

### **Richland County Killian**

**08 1514EST** **0 0 0** **Hail (0.75)**

Fire Dept reported 3/4 inch hail.

### **Richland County Columbia**

**08 1515EST** **0 0 0** **Thunderstorm Wind (G75)**

Sheriff reported structural damage to several buildings and many trees down in northeast Columbia.

### **Sumter County 15 W Sumter**

**08 1540EST** **0 0 0** **Hail (0.75)**

SKYWARN spotter reported 3/4 inch hail on hwy 378.

### **Sumter County Pinewood**

**08 1607EST** **0 0 0** **Thunderstorm Wind (G75)**

Utility company reported several telephone poles snapped in half and trees down.

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## SOUTH CAROLINA, Central

### **Clarendon County**

**Paxville to Manning**      **08**      **1615EST**                **0**      **0**           **0**      **Thunderstorm Wind (G75)**

EPD reported many trees down from Paxville to Manning.

### **Clarendon County**

**Paxville**      **08**      **1615EST**                **0**      **0**           **0**      **Thunderstorm Wind (G75)**

Utility company reported several telephone poles snapped in half.

### **Orangeburg County**

**Cordova**      **08**      **1750EST**                **0**      **0**           **0**      **Thunderstorm Wind (G60)**

EPD reported trees down.

### **Orangeburg County**

**Rowesville**      **08**      **1755EST**                **0**      **0**           **0**      **Thunderstorm Wind (G60)**

EPD reported trees down.

## SOUTH CAROLINA, North Coastal

### **SCZ034**

#### **Horry**

**03**      **1455EST**                **0**      **0**           **High Wind (G53)**

**1500EST**

### **Horry County**

**Conway**      **03**      **1515EST**                **0**      **0**           **Flash Flood**

**1800EST**

### **Georgetown County**

**Choppee**      **03**      **1625EST**      **0.1**      **20**      **0**      **0**           **Tornado (F0)**

Hurricane Earl came ashore on the Florida Gulf Coast as a tropical storm, and passed across the Carolinas during the day and evening of 9/3/98. Wind gust reports ranged as high as 70 MPH in Horry County, where sustained winds reached 50 MPH for 5 minutes. A tornado briefly touched down in Georgetown County. Rainfall reports ranged from 2 to 4 inches onto ground soaked by Hurricane Bonnie on 8/26, resulting in flooding of some roads, especially along the coast.

### **Florence County**

**Pamplico**      **08**      **1440EST**                **0**      **0**      **25K**      **Thunderstorm Wind (G70)**

**1445EST**

A thunderstorm microburst struck near Hannah-Pamplico High School, felling trees and power lines. One car was totaled and others were dented.

### **Horry County**

**Conway to Nixonville**      **08**      **1530EST**                **0**      **0**      **50K**      **Heavy Rain**

**1600EST**

As a cold front generated thunderstorms, lightning caused equipment failure. Brief torrential downpours were blamed for a multi-car accident in Conway at US 378 and 501, and another accident in Myrtle Beach at US 17 Bypass and 38th Ave N.

### **Georgetown County**

**Georgetown**      **08**      **1530EST**                **0**      **0**      **15K**      **Thunderstorm Wind (G60)**

**1540EST**

Trees and power lines were reported downed as a thunderstorm passed through the city.

### **Horry County**

**Conway**      **08**      **1530EST**                **0**      **0**      **10K**      **Thunderstorm Wind (G70)**

**1535EST**

The roof was blown off and a wall caved in at Grand Strand Millworks, at Old Woodward Rd and Business US 501.

## SOUTH CAROLINA, Northwest

### **Spartanburg County**

**2 N Wellford to Startex**      **07**      **1615EST**                **0**      **0**      **40K**      **Thunderstorm Wind (G65)**

**1625EST**

An isolated severe thunderstorm caused significant wind damage. Large trees were blown down onto at least 3 houses and 5 cars. Power lines were also blown down.

### **Chester County**

**Chester to 5 ESE Chester**      **08**      **1330EST**                **0**      **0**           **Thunderstorm Wind (G50)**

**1340EST**

A few trees and power lines were blown down from Chester to the east of town.

### **Laurens County**

**Laurens to Clinton**      **08**      **1353EST**                **0**      **0**           **Hail (1.00)**

Numerous reports of hail, some up to quarter size were received from several spotters around Laurens and Clinton



# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>SOUTH CAROLINA, Northwest</u></b>									
<b>Chester County</b>									
Great Falls	08	1355EST 1400EST			0	0			Hail (2.75)
<b>Chester County</b>									
Great Falls	08	1355EST 1400EST			0	0	15K		Thunderstorm Wind (G60)
The severe thunderstorm gained strength as it moved southeast across Chester County. The storm was rotating weakly, and may have been tornadic, but no firm evidence was found during a storm survey. There were some second-hand reports of a tornado touchdown. Large trees were blown down in the town, a window was blown out of a store, and shingles on roofs were damaged.									
<b><u>SOUTH CAROLINA, South Coastal</u></b>									
<b>Jasper County</b>									
Countywide	03	0545EST 0600EST			0	0			Thunderstorm Wind (G55)
Numerous trees and power lines down. One car was blown off the road near Ridgeland.									
<b>Beaufort County</b>									
Beaufort	03	0550EST 0605EST			0	0			Thunderstorm Wind (G55)
Trees down.									
<b>Beaufort County</b>									
8 ESE Frogmore to 13 E Beaufort	03	0728EST 0745EST	15	75	1	4	360K		Tornado (F2)
Thirteen homes were destroyed and another thirteen were heavily damaged, most of them were mobile homes. One mobile home was flipped in the air and smashed to the ground where a 66 -year old female was crushed to death. Numerous trees were snapped off 5 to 15 feet above the ground with others uprooted. The worse of the damage was concentrated in an area approximately 2.5 to 3 miles long across Fripp Island to near Morgan Island. The tornado then crossed the St Helena Sound and moved into Colleton County. F66MH									
<b>Colleton County</b>									
4 SSE Bennetts Pt to 1 S Bennetts Pt	03	0745EST 0750EST	3	50	0	0			Tornado (F1)
Tornado damage was confined mostly to wooded marsh area which uprooted or snapped off trees.									
<b>Colleton County</b>									
Central Portion	03	0814EST 0825EST			0	0			Thunderstorm Wind (G55)
Numerous trees and power lines down.									
<b>Charleston County</b>									
North Charleston	03	0945EST			0	0			Thunderstorm Wind (G50)
Large limbs and power lines down.									
<b>Jasper County</b>									
Hardeeville to Tillman	03	1038EST 1050EST			0	0			Thunderstorm Wind (G50)
Trees and power lines down.									
<b>SCZ048</b>									
<b>Beaufort</b>									
	03	1045EST 1500EST			0	0			High Wind (G47)
Three boats at the Port Royal marina sank as they were battered throughout the day from four to five foot swells generated by the strong winds associated with the remnants of Tropical Storm Earl.									
<b>Hampton County</b>									
3 SSE Furman to 2 E Furman	03	1110EST 1115EST			0	0			Thunderstorm Wind (G50)
Trees, large limbs and power lines down.									
<b>Berkeley County</b>									
5 N Goose Creek to 9 N Goose Creek	03	1215EST 1220EST			0	0			Thunderstorm Wind (G50)
Trees and limbs down.									
<b>Colleton County</b>									
7 SSE Green Pond to 6 SE Green Pond	03	1228EST	1	40	0	0			Tornado (F1)
Tornado took a roof off a barn and snapped off or uprooted several trees on a private plantation.									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

September 1998

## SOUTH CAROLINA, South Coastal

### **Berkeley County**

2 SE Moncks Corner to 03 1230EST 7 430 0 9 2.8M Tornado (F2)  
5 NE Moncks Corner 1245EST

Seventy-three (73) homes were damaged, fourteen mobile homes destroyed and seven (7) homes destroyed. The Fairlawn subdivision, just southeast of Moncks corner was hardest hit.

### **Dorchester County**

5 SW Summerville to 03 1300EST 0 0 Thunderstorm Wind (G50)  
3 E Ridgeville 1310EST

Numerous trees down.

### **Berkeley County**

Moncks Corner 08 1748EST 0 0 Thunderstorm Wind (G52)  
1753EST

### **Charleston County**

North Charleston 21 1939EST 0 0 413.5K Flood  
2330EST

### **Berkeley County**

Hanahan 21 1940EST 0 0 Flood  
2345EST

Tropical moisture caused continuous showers and thunderstorms that produced 10 to 11 inches of rain on already saturated ground in a 6 to 8 hour period. This combination caused flooding in numerous subdivisions in North Charleston and Hanahan. Several mobile home parks had to be evacuated when water rose to heights of 5 feet in some neighborhoods, flooding cars and first floors of homes and businesses.

## SOUTH DAKOTA, Central and North

NONE REPORTED.

## SOUTH DAKOTA, Southeast

### **Miner County**

5 SE Fedora 28 1845CST 0 0 Hail (1.50)

### **Brookings County**

7 W White to 28 2040CST 0 0 200K Tstm Wind/Hail  
3 E White 2110CST

Small hail, accompanied by strong winds, accumulated several inches in places with some drifts up to 3 feet. The hail damaged crops, especially soybean crops which were almost ready for harvest.

## SOUTH DAKOTA, West

NOT RECEIVED.

## TENNESSEE, Central

NONE REPORTED.

## TENNESSEE, East

TNZ012>018-034>047- Scott - Campbell - Claiborne - Hancock - Hawkins - Sullivan - Johnson - Fentress - Morgan - Anderson -  
066>074-083>087- Union - Grainger - Hamblen - Northwest Coker - Coker/Smoky Mountains - Northwest Greene - Southeast  
099>102 Greene - Washington - Unicoi - Northwest Carter - Southeast Carter - Cumberland - Roane - Loudon - Knox  
- Jefferson - Northwest Blount - Blount/Smoky Mountains - North Sevier - Sevier/Smoky Mountains - Rhea -  
Meigs - McMinn - Northwest Monroe - Southeast Monroe - Hamilton - Bradley - West Polk - East Polk  
01 0001EST 0 0 Drought  
30 2359EST

An extremely dry month throughout all of East Tennessee. Rainfall totals and departure from normal from the 3 official observing sites are as follows: Tri-Cities (TRI): 0.9" total, 2.36" below normal; Knoxville (TYS): 1.31" total, 1.76" below normal; Chattanooga (CHA): 1.47" total, 2.68" below normal.

### **Hamilton County**

Chattanooga 06 1833EST 0 0 2K Thunderstorm Wind  
Trees down.

## TENNESSEE, West

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons KilledInjured		Estimated Damage PropertyCrops		Character of Storm
<b><u>TEXAS, Central</u></b>									
<b>Mcculloch County</b>									
Brady	16	1545CST 1700CST			0	0			Flash Flood
U.S. Highway 87 was closed just north of Brady because of high water.									
<b>Kimble County</b>									
Telegraph	16	1721CST 1900CST			0	0			Flash Flood
Telegraph Canyon Draw in Telegraph reported out of its banks.									
<b>Kimble County</b>									
8 S Junction	16	2018CST 2230CST			0	0			Flash Flood
U.S. Highway 377 was closed south of Junction by flood waters.									
<b>TXZ169</b>									
		<b>Kimble</b>							
	16	2230CST			0	0			Flood
	17	1700CST							
U.S. Highway 377 south of Junction remained closed as the LLano River rose out of its banks.									
Thunderstorms that developed in the remnants of Tropical Storm Frances produced 3 to 4 inches of rain across the Northwest Hill Country. Several roads were briefly closed due to flood waters.									

## TEXAS, Central Southeast

**TXZ163>164-176>179-195>200-210>214-226>227-235>238** **Houston - Trinity - Madison - Walker - San Jacinto - Polk - Burleson - Brazos - Washington - Grimes - Montgomery - Liberty - Colorado - Austin - Waller - Harris - Chambers - Wharton - Fort Bend - Jackson - Matagorda - Brazoria - Galveston**

07	1700CST	3	0	287.2M	Tropical Storm
12	2359CST				

Synoptic Situation...

On Monday September 7 (Labor Day) a tropical disturbance in the western Gulf of Mexico was increasing the pressure gradient along the Texas coast. A weak cold front had pushed south to near the Red River by Tuesday evening. At 4pm Tuesday the disturbance was upgraded to a Tropical Depression located about 250 miles south of Galveston. On Wednesday morning the cold front had sagged down to a Lufkin to Dallas line with a 1022 high pressure centered over the Ohio Valley. At 4 PM the depression was upgraded to a Tropical Storm and given the name Frances. Winds along the upper Texas coast were from the ENE 20 to 30 mph with gusts nearing 40 mph. The poorly organized Tropical Storm center of circulation was still located about 250 miles south of Galveston with maximum sustained winds of 40 mph. On Thursday the storm remained disorganized and was located about 190 miles south of Galveston. On Thursday afternoon the storm had deepened and maximum sustained winds had increased to near 60 mph. The surface ridge of high pressure had now shifted to the southeast centered over Tennessee increasing the pressure gradient and the winds along the upper Texas coast. Early Friday morning Frances neared the Texas coast near Port O'Connor. Winds along the upper Texas coast continued at 30 to 40 mph sustained winds with gusts near 50 mph at times. Frances moved inland just southwest of Victoria and remained nearly stationary throughout the day on Friday. On Friday evening Frances began moving to the north northeast. At 7 PM Frances was downgraded to a Tropical Depression as it moved to the northeast of Victoria. At 10 PM the remnants of Frances was located about 65 miles west of Houston and it was longer being tracked by the National Hurricane Center.

Tides....

Most of the damage along the coastal communities can be attributed to the high tides that persisted for nearly two days. The high tides in Galveston Bay also enhanced the flooding problems experienced further inland by the heavy rains. A Coastal Flood Watch was issued Monday night concerning the possibility of high tides beginning on Tuesday with tides expected to run 3 feet above predicted levels. On Tuesday afternoon the Coastal Flood Watch was updated to extend the watch into Wednesday with tides predicted to be 3 to 4 feet above predicted levels by Wednesday afternoon. At 4pm Tuesday Tropical Depression #6 formed in the Gulf of Mexico and a Tropical Storm Warning was issued for the Texas Coast from High Island to Brownsville. The Tropical Storm Warning implies Coastal Flood Warning is also in effect.. On Wednesday the tide forecast was updated with a forecast of tides 4 to 5 feet above predicted levels expected on Thursday. On Thursday the tide prediction for Friday called for tides increasing to levels of 4 to 6 feet above the predicted levels.

On the beach front at Galveston Pleasure Pier the tides rose above 4 feet above MLLW on Wednesday afternoon (Sept 9) and remained above this level until the Friday afternoon (Sept. 11). The maximum level was reached on Thursday evening when the gauge read around 7 feet above MLLW or about 4.5 feet above the predicted levels. In Galveston Bay a similar even took place. At Eagle Point the tides rose above 4 feet above MLLW on Wednesday evening (October 9) and stayed above this level until after midnight on October 12. The peak height reached was around 5.7 feet above MLLW during the early morning hours of October 10 which is 4.7 feet above the predicted levels.

Similar conditions were found along the entire upper Texas Coast from High Island to Matagorda and in the inland bays. With tides above 4 feet MLLW for 36 to 48 consecutive hours and winds in excess of 25 mph through the same period led to the destructive waves along the beach front. These destructive waves resulted in most of the dune systems from High Island to Sargent Texas

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
		Character of Storm							

## TEXAS, Central Southeast

being almost completely destroyed.

### Winds and Pressure..

Winds ranged from 25 to 35 knots (29 - 40 mph) for over 24 hours starting around midnight on the September 10 and continuing til the early morning of September 11. The strongest wind recorded was 47 knots (54 mph) at Galveston Scholes Field around 6pm on Sept. 10. Other peak winds recorded around the area included 46 knots (53 mph) at Palacios and 31 knots (36 mph) at Houston Intercontinental Airport. at Palacios and 31 knots (36 mph) at Houston Intercontinental Airport.

The lowest atmospheric pressure recorded was at Palacios when the barometer read 29.38 inches at 254 PM on Sept. 11. Galveston recorded 29.48 inches at 529 am Sept. 11.

### Rainfall...

Rainfall from Tropical Storm Frances began effecting the coastal areas during the morning on Thursday and conditions slowly spread inland Thursday afternoon and further inland early Friday morning. Over 4 inches of rain fell over all of the Houston/Galveston County Warning area. Over 10 inches of rain was common along the coastal counties of Matagorda...Brazoria...Galveston and Chambers and also over inland counties including Harris...Polk...San Jacinto and Washington. With tides already running 4 to 6 feet above normal the runoff from the rains was not able to easily runoff into the bays thus resulting in more widespread flooding of inland creeks and bayous especially early Friday morning.

### River and Bayou Flooding...

September was an active month across the HSA with Tropical Storm Frances dumping 4 to 6 inches of rain over the region. Large areas received 8 to 10 inches of rain with some areas receiving more than 12 inches. The result was significant flooding in many areas. Flooding was exacerbated in many areas by tides 4 to 6 feet above normal. Significant rises occurred on the San Bernard River in Brazoria County from above Sweeny to the mouth on September 9th with flood stage exceeded on September 10th. This rise was mainly due to strong tidal influence. Significant rains began on September 10th and continued through the 12th. The majority of the rain occurred during the morning hours of September 11th as Frances made landfall.

By daybreak September 11th significant flooding was occurring in Harris County and the City of Houston. Homes in Jersey Village and Woodland Trails in northwest Houston along White Oak Bayou were flooding by 6:00 am. Most subdivisions along White Oak Bayou experienced house flooding. Homes were also flooded on Halls Bayou above I-45, on Brays Bayou at Lawndale near the confluence with the Houston Ship Channel, and on Armand Bayou near Spencer Highway in Pasadena. I-10 between the West Loop and downtown Houston and I-45 near North Main Street were closed by 9:00 am due to flooding from Buffalo and White Oak Bayous. State Highway 288 was closed due to flooding from Brays Bayou. In all more than 1400 homes and businesses were damaged or destroyed in this event.

In Brazoria County Chocolate Bayou near Alvin exceeded its banks in the channel above FM 1462 to the mouth at Chocolate Bay. Several minor roads were impacted by this flooding.

Significant flooding occurred on the San Bernard River above U.S. Highway 59 near Kendalton to the mouth. Primary flooding above fm 442 near Boling was due to backwater on the tributaries of Peach and West Bernard Creeks in Wharton County. While no homes were reported flooded several roads in the El Lobo subdivision were inundated. A combination of strong tidal influence and heavy rain produced the rise in the channel above Sweeny to the mouth. While low lying areas along the river were flooded the most significant impact was on barge traffic at the Phillips Petroleum Facility.

The Tres Palacios River in Matagorda County began rising at the rate of one foot an hour during the evening hours of September 10th resulting in moderate lowland flooding above State Highway 71 near Midfield to the mouth at Tres Palacios Bay. Significant backwater up Juanita Creek, about one mile upstream from the gaging station FM 456 was also noted. Several farm to market and county roads in Matagorda County were inundated by this flood. There were no reports of homes flooded, however, several areas were isolated due to the flooded roadways.

Flooding on East Mustang Creek near Louise in Wharton County closed FM 647 for several hours on September 12th. Secondary and minor roads near the creek were also inundated.

Several small, ungaged watersheds in Chambers, Galveston, Brazoria, Matagorda, Fort Bend, and Wharton Counties flooded. This resulted in the closing of many farm to market and county with several homes and subdivisions threatened. These included Dickinson Bayou in Galveston County, Oyster Creek in Brazoria County and Caney Creek in Matagorda County.

Water had receded on all but the San Bernard and Tres Palacios Rivers by the afternoon of September 12th. There were no deaths of serious injuries due to river flooding associated with this event. Galveston, Harris, Brazoria, and Matagorda Counties were declared disaster areas.

### Impact and Damage...

Major impact and resultant damage occurred in Galveston, Harris, Brazoria and Matagorda counties of Texas. All four of these

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>TEXAS, Central Southeast</u></b>									
counties received a Presidential Disaster Declaration to help in the relief and recovery efforts. In these four counties total damage exceeded \$286 million dollars. Most of this damage was along the coast and around Galveston Bay where high tides and winds destroyed dunes and personal property. Nearly 100 single family homes were destroyed along the upper Texas coast by the high tides and battering waves. Other damage was a result of inland flooding due to heavy rains mainly in Harris county along White Oak and Buffalo Bayous.									
There were only 3 deaths that can be attributed to Tropical Storm Frances. A father and daughter drowned on Galveston Island while swimming in the surf during the day Monday. The third death occurred on Wednesday when a surfer drowned on the beaches of Surfside in Brazoria county while surfing the large waves.									
Summary...									
Tropical Storm Frances brought home how vulnerable the Texas Coast is to Tropical weather systems even if they do not achieve Hurricane Strength. Since Frances never achieved Hurricane strength the citizens along the upper Texas Coast never realized the damage that could result from €JUST A TROPICAL STORM€. With a long siege of high tides coupled with Tropical Storm Force Winds it was very similar to having a strong Category One Hurricane. The rains that accompanied the storm were fairly normal for a slow moving Tropical Storm but flooding was aggravated by the High Tides that were already in place when the heavy rains began.									
<b>Matagorda County</b> Sargent	10	1815CST 1816CST	0.2	25	0	5	15K		Tornado (F0)
Brief tornado touchdown in Sargent. Five minor injuries from flying debris.									
<b>Brazoria County</b> South Portion	10 11	2110CST 0100CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Matagorda County</b> Wadsworth	10 11	2110CST 0100CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Galveston County</b> South Portion	10 11	2310CST 0745CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Brazoria County</b> South Portion	11	0105CST 0500CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Fort Bend County</b> Katy	11	0300CST 0500CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Harris County</b> Countywide	11	0300CST 1355CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Harris County</b> La Porte	11	0332CST 0334CST	0.2	50	0	0			Tornado (F1)
Tornado touchdown caused moderate damage to homes and apartments. Damage included in T.S. Frances summary.									
<b>Jackson County</b> South Portion	11	0345CST			0	0			Flash Flood
Flooding from T.S. Frances. Damage included in previous report.									
<b>Harris County</b> Baytown	14	0905CST 1145CST			0	0	5K		Flash Flood
High water on Desea Rd, Sterling Rd, and Main St.									
<b>Liberty County</b> Hardin	14	0905CST 1145CST			0	0	5K		Flash Flood
High water on CR 2099.									

# Storm Data and Unusual Weather Phenomena

September 1998

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>TEXAS, Central Southeast</u></b>									
<b>Chambers County</b> Winnie	14	1345CST 1455CST			0	0	5K		Flash Flood
High water on HWY 124 near Winnie and on Bayshore Rd. in Oak Island.									
<b>Jackson County</b> Countywide	16	0830CST 1415CST			0	0	30K		Flash Flood
Numerous county roads closed due to high water. Volunteer evacuations for low-lying parts of Edna around noon.									
<b>Jackson County</b> Countywide	16	1430CST 1900CST			0	0	15K		Flash Flood
Still have 21 roads closed due to flooding.									
<b>Brazoria County</b> 12 NW Freeport	16	1432CST			0	0	15K		Thunderstorm Wind
Roof damage to homes.									
<b><u>TEXAS, Extreme West</u></b>									
NONE REPORTED.									
<b><u>TEXAS, Mid - South</u></b>									
<b>Bee County</b> Normanna	11	0850CST			0	0			Flood
<b>Bee County</b> Beeville	11	1117CST			0	0			Flood
Tropical Storm Frances made landfall along the Texas Coastal Bend between Port Aransas and Rockport during the early morning of September 11 1998. Widespread coastal flooding occurred from Padre Island and Corpus Christi northward to Port OConnor. Heavy rainfall from Frances caused the rapid rises on areal rivers and creeks. Significant flash flooding was reported in Bee County. Numerous roadways, including a portion of U.S. Highway 59 west of Beeville, were closed due to flooding in Bee County.									
<b>Refugio County</b> Refugio	16	0815CST			0	0			Flash Flood
<b>Victoria County</b> Victoria	16	0910CST			0	0			Flash Flood
<b>Calhoun County</b> Port O Conner	16	0935CST			0	0			Flash Flood
<b>Calhoun County</b> Seadrift	16	1200CST			0	0			Flash Flood
<b>Aransas County</b> Rockport	16	1215CST			0	0			Flash Flood
<b>Aransas County</b> Holiday Beach	17	0415CST			0	0			Flash Flood
<b>Nueces County</b> Corpus Christi	22	1048CST	0.2	10	0	0			Tornado (F0)
NWS meteorologist and numerous spotter reports of a funnel cloud which descended to the ground as a tornado. The life cycle of the tornado ranged between 5 and 10 minutes.									
<b><u>TEXAS, North</u></b>									
<b>Cooke County</b> 5 NE Valley View	08	2120CST			0	0	2K		Thunderstorm Wind
Thunderstorm winds blew a 18x60 foot trailer on its side.									
<b>Rains County</b> Emory	11	1715CST			0	0	0		Thunderstorm Wind
Thunderstorm winds blew large tree limbs down onto a road.									
<b>Henderson County</b> 6 N Aley	15	0350CST			0	0			Flash Flood
Several county roads were flooded and closed near Aley.									
<b>Navarro County</b> Kerens	15	0615CST			0	0			Flash Flood
Heavy rains flooded some roads in Kerens.									

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>TEXAS, North</u></b>									
<b>Kaufman County</b>									
Forney	16	0434CST 0600CST			0	0			Flash Flood
		Farm Market 1641 near Forney was flooded.							
<b>Rockwall County</b>									
Rockwall	16	0437CST			0	0			Flash Flood
		Water covered some roads near Rockwall.							
<b>Dallas County</b>									
Mesquite	16	0620CST			0	0			Flash Flood
		One foot of water covered the Beltline and Interstate 30 junction in Mesquite.							
<b>Dallas County</b>									
Garland	16	0650CST			0	0			Flash Flood
		High water was reported at Interstate 30 and Broadway.							
<b><u>TEXAS, North Panhandle</u></b>									
<b>TXZ001&gt;020</b>			<b>Dallam - Sherman - Hansford - Ochiltree - Lipscomb - Hartley - Moore - Hutchinson - Roberts - Hemphill - Oldham - Potter - Carson - Gray - Wheeler - Deaf Smith - Randall - Armstrong - Donley - Collingsworth</b>						
	01 30	0000CST 2359CST			0	0			Drought
		A moderate drought occurred across the Texas panhandle in September as reported by the USGS. A dollar estimate on crop damage will be available after the growing season.							
<b>Carson County</b>									
Panhandle	27	1515CST			0	0			Hail (0.75)
		A severe thunderstorm developed across the central sections of the Texas panhandle during the late afternoon hours.							
<b><u>TEXAS, Northeast</u></b>									
<b>Harrison County</b>									
Hallsville	04	1655CST			0	0			Thunderstorm Wind (G52)
		Numerous trees down in Hallsville.							
<b>Rusk County</b>									
4 SW Chalk Hill	04	1840CST			0	0			Thunderstorm Wind (G52)
		Numerous trees down between Hwy 322 and FM 1716.							
<b>Gregg County</b>									
5 SE Gladewater	15	2345CST			0	0			Flash Flood
		Hwy 135 and the Old Gladewater Hwy were closed between Gladewater and I-20 due to flooding.							
<b>Upshur County</b>									
5 NW Gladewater	16	0130CST			0	0			Flash Flood
		Hwy 80 flooded and reduced from 4 lane to 1 lane traffic.							
<b>Gregg County</b>									
Gladewater	16	0100CST			0	0	30K		Flash Flood
		Several roads washed out including Commerce, West Lake, and East Lake.							
<b><u>TEXAS, South</u></b>									
<b>TXZ251-253-255</b>			<b>Kenedy - Hidalgo - Cameron</b>						
	06 11	1600CST 0400CST			0	0			Tropical Storm
		Tropical Storm Frances produced widespread heavy rain, gusty winds, high tides, and beach flooding. Rainfall totals were generally 4 to 8 inches with 13.75 inches 4SE of Armstrong and 10.79 inches at Port Mansfield. The strongest winds measured were 34 knots gusts to 42 knots at Port Isabel/Cameron County Airport. The highest tide level was 3.51 MSL and 3.47 above predicted at the Port Isabel Turning Basin. Extensive beach flooding occurred with both Park Road 100 north of the City of South Padre Island and State Highway 4 near the beach flooded and covered with sand/debris.							
<b>Starr County</b>									
Rio Grande City	22	1630CST 2000CST			0	0	4K		Flash Flood
		Three to four inches of rain caused extensive flooding of streets and some houses located in low lying areas.							
<b><u>TEXAS, South Central</u></b>									
<b>Lavaca County</b>									
Countywide	10 11	2250CST 0800CST			0	0	15K	20K	Flash Flood

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
		Character of Storm							

## TEXAS, South Central

### De Witt County Countywide

**10 2330CST**  
**11 1100CST**  
**0 0 25K 50K Flash Flood**

Tropical Storm Frances developed in the northwest Gulf of Mexico on Wednesday, September 9th, moving toward the mid Texas coast. Early on Friday morning, September 11th, Tropical Storm Frances made landfall on the Texas Coast between Corpus Christi and Victoria. The tropical storm then drifted slowly northward to near Victoria during the day, and was downgraded to a tropical depression that night. Frances continued northward on Saturday, moving into North Texas that afternoon.

Winds and rains from the approaching tropical storm reached South Central Texas on Thursday, September 10th, . Heavy rains fell Thursday night and Friday morning over Lavaca and DeWitt counties, producing generally from 6 to 8 inches over DeWitt County and from 3 to 7 inches in Lavaca County. Widespread flooding of low water crossings was reported, with numerous road closures. Further to the west, 1 to 2 inch rains fell from near and around San Antonio east to parts of Guadalupe and Wilson Counties.

### Karnes County Countywide

**11 0430CST**  
**1100CST**  
**0 0 3K 5K Flash Flood**

### Wilson County Countywide

**11 0730CST**  
**1300CST**  
**0 0 3K 5K Flash Flood**

### Bexar County Countywide

**11 1030CST**  
**1500CST**  
**0 0 15K 0 Flash Flood**

Tropical showers and thunderstorms redeveloped in bands to the west and northwest of weakening Tropical Storm Frances on Friday. Rain amounts were less than on Thursday night, but averaged from 2 to 3 inches with isolated totals near 4 inches. Flash flooding developed in the early morning hours over Karnes and Wilson Counties, as the activity spread northwestward. Heavy rainfall and flooding ended by the mid afternoon.

### De Witt County Countywide

**15 1500CST**  
**1600CST**  
**0 0 3K 0 Flash Flood**

### Lavaca County Countywide

**15 1500CST**  
**1700CST**  
**0 0 3K 0 Flash Flood**

Scattered showers and thunderstorms redeveloped over the two counties, whose soils remained nearly saturated from the heavy rainfall from Tropical Storm Frances. Rain totals of up to 4 inches were reported in Lavaca County with totals of up to 3 inches in DeWitt County

### Edwards County North Portion

**16 1830CST**  
**1930CST**  
**0 0 5K 0 Flash Flood**

### Real County North Portion

**16 1830CST**  
**2030CST**  
**0 0 3K 0 Flash Flood**

A large mass of showers and thunderstorms developed in the afternoon of the 16th in Val Verde County and spread slowly northeastward across the eastern Edwards Plateau later that evening. General rainfall of 1 to 2 inches was reported over a six-county area, with amounts of 4 to 6 inches in Real and Edwards Counties. Numerous roads were reported closed with some of the worst flooding along SH377 and SH41. Repairs to roads and bridges across the two counties had still not been completed from the previous flooding in August associated with Tropical Storm Charley, somewhat limiting the damage totals.

## TEXAS, South Panhandle

### TXZ021>044

**Parmer - Castro - Swisher - Briscoe - Hall - Childress - Bailey - Lamb - Hale - Floyd - Motley - Cottle - Cochran - Hockley - Lubbock - Crosby - Dickens - King - Yoakum - Terry - Lynn - Garza - Kent - Stonewall**  
**01 0000CST**  
**30 2300CST**  
**0 0 Drought**

September was yet another dry month across the Texas South Plains as a long-term drought continued to affect the region. September rainfall on the South Plains averaged only one-third of one inch, which was more than two inches below normal for the month. In Lubbock, only 0.02 inches was recorded.

More details, including rough estimates of crop damage, will be included in later months after the extent of the drought is better determined.



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
Character of Storm									

## TEXAS, Southeast

### TXZ215

#### Jefferson

01 1500CST  
02 0300CST

0 0 10K Hurricane

Hurricane Earl passed well to the east of southeast Texas, but high tide readings of 3.5 ft MSL caused minor flooding along the coast of Jefferson County, primarily in the Sabine Pass area.

### TXZ215>216

#### Jefferson - Orange

09 1800CST  
11 1800CST

0 0 7M Tropical Storm

Tropical Storm Frances was the third tropical system to impact southeast Texas in 3 weeks, and caused the worst damage. Wind gusts in excess of 50 mph occurred along the coast on September 11th, but most of the damage occurred from the high tides. At Sabine Pass, the tide reading reached 5.3 ft MSL, which was one of the highest tides in the last 30 years. On top of the high tides, heavy rain lasting several days dropped 8 to 10 inches of rain across the region.

At Sea Rim State Park, water got to the top of the dunes, which is 8 to 9 feet higher than normal.

Offshore oil workers evacuated before 70 to 80 mph wind gusts impacted the rigs offshore. Many of these evacuees landed in Sabine Pass, Texas, and were caught in town due to the high tides. Sabine Pass was totally isolated from road traffic for three days due to high water. Nearly every home and business in Sabine Pass had salt water enter them (over 70 places). Highway 87 between Sabine Pass and Port Arthur was closed early in the morning on September 10th, and was not reopened until September 15th. As much as 3 feet of water covered sections of Highway 87 across Jefferson County.

The millions of dollars worth of damages in Jefferson County was primarily a result of road damages. Highway 87 between Sabine Pass and Port Arthur received major damage, as did Highway 87 between Port Arthur and Bridge City, around the Rainbow Bridge. Pleasure Island received significant damage to the levee from the high tides and heavy wave action.

In Orange County, the worst hit areas included Bridge City and Vidor. Several roads were closed from September 11th through the 13th. Over 4,000 sandbags were passed out so homeowners could protect their places from the high water.

### Orange County Orange

11 1300CST  
1500CST

0 0 50K Flood

Heavy rain associated with TS Frances caused several streets to be flooded in Orange, Vidor, and Bridge City. Doppler radar and weather observers recorded between three and five inches of rain.

### Jefferson County Beaumont

11 1300CST  
1600CST

0 0 100K Flood

Significant flooding occurred in Beaumont when as much as 5 inches of rain fell in less than 2 hours. Many streets had as much as two feet of water over them, and passing vehicles caused wakes that would crash into the buildings.

### Orange County Orange

13 1000CST  
1600CST

0 0 100K Flood

Storm totals of more than 14 inches of rain has caused numerous streets to flood across Orange County, including the Orange, Vidor, and Bridge City areas. This was a continuation of the serious flooding from the remnants of TS Frances.

### Newton County Bleakwood

13 1000CST  
1600CST

0 0 50K Flood

Over 12 inches of rain in the past 3 days resulted in significant flooding in Newton County. Among the hardest hit area was Bleakwood, where several families had to evacuate due to rising water.

### Jefferson County Hampshire

13 1000CST  
1600CST

0 0 100K Flood

Over 10 inches of rain, combined with high water levels in the marshes, resulted in several homes being flooded in Hampshire, Fannett, and LaBelle. Water covered area roadways for several hours.

## TEXAS, West

### TXZ045>048-050>052- 057>063-067>070- 074>075-079>082

#### Gaines - Dawson - Borden - Scurry - Andrews - Martin - Howard - Van Horn/Guadalupe Mountains Area - Reeves County And Upper Trans Pecos - Loving - Winkler - Ector - Midland - Glasscock - Ward - Crane - Upton - Reagan - Davis Mountains - Pecos - Presidio Valley - Marfa Plateau - Big Bend Area - Terrell

01 0000CST  
30 2359CST

0 0 Drought

Drought conditions continued in Southwest Texas and Southeast New Mexico. Agricultural losses will be great but will not be included until the end of the harvest when totals are calculated. Most stations reported less than an inch of rain for the month with several stations reporting no rain. The Midland International Airport received only 0.08" of rain for a to-date annual total of 3.13".

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>TEXAS, West</u></b>									
The January to September period 1998 was the driest first nine months ever recorded (dating back to 1930).									
<b>Midland County</b> 4 ENE Midland	09	2000CST			0	0	0.50K		Thunderstorm Wind
A marginally severe thunderstorm caused a brief microburst that uprooted a carport. Several other vulnerable items on the same property were surprisingly unaffected.									
<b>Gaines County</b> 1 E Seagraves	14	1928CST			0	0	2.5M		Hail (0.88)
A mixture of hail and wind caused devastating damage to cotton crops in the area. Heavy damage was done to about 4000 acres of cotton while light damage was done to about 16,000 acres.									
<b>Gaines County</b> 1 E Seagraves	14	1928CST 1940CST			0	0	700K		Thunderstorm Wind
An isolated severe thunderstorm rapidly intensified as it moved to the south into Northern Gaines County just east of Seagraves. Doppler radar showed this storm to have VILs in excess of 50 kg/m2 for several volume scans as it entered the county. VILs and low-level reflectivity decreased significantly during and shortly after the time severe weather was reported. The MAF evening sounding suggested the potential for hybrid microbursts, with wind gusts over 75 knots possible.									
A trailer house and barn one mile east of the city limits were demolished, and the roofs off three hangars at the municipal airport farther east of town were partly or totally removed. Other structures from eastern city limits to a couple miles east of the city limits incurred similar damage. The most costly damage was to the cotton crops, which were days away from being harvested. Winds estimated at or above 80 mph levelled these crops with pea-sized and smaller hail. A 17,000 pound tractor was also moved over 100 feet and 23 center-pivot irrigation systems were at least overturned.									
<b>Gaines County</b> 17 SE Seagraves	14	2000CST			0	0	1K		Thunderstorm Wind
After pounding the areas east of Seagraves, this storm caused additional structural damage to power poles a half hour later. Many people in Loop were consequently without power for several hours.									
<b><u>TEXAS, Western North</u></b>									
NOT RECEIVED.									
<b><u>UTAH, North, Central and South</u></b>									
<b>Iron County</b> Cedar City	01	1430MST 1500MST			0	0	2K	1K	Urban/Sml Stream Fld
<b>Washington County</b> Santa Clara	01	1700MST			0	0	10K	0	Lightning
<b>Kane County</b> Kanab	01	1845MST 1930MST			0	0	30K	2K	Flash Flood
Heavy rains hit southwest Utah on this date. Some roads and yards were flooded in Cedar City. A road was washed out in the Brian Head area. 1.31" of rain fell in 30 minutes in Kanab and flooded roads and several homes. Lightning sparked a house fire in Santa Clara.									
<b>UTZ017-019&gt;021</b>	<b>Central And Southwest Mountains - Utah'S Dixie And Zion National Park - South Central Utah/Kanab/Escalante - Glen Canyon Recreation Area/Lake Powell</b>								
	05	0400MST 1500MST			0	0	70K	11.5K	Flood
Numerous thunderstorms with heavy monsoonal rains caused flooding across southern Utah on this date. 1-2" of rain was measured in these areas. Several roads and one bridge were washed out.									
<b>Kane County</b> Glen Canyon	05	1700MST 1800MST			1	0	0	3K	Flash Flood
A 10 year old girl drowned in a flash flood in Ice Cream Canyon in the southern portion of the Glen Canyon National Recreation Area. 7/8" of rain fell in a short period of time at a nearby ranger station. F10IW									
<b>Washington County</b> Ivins to (Sgu)St George Muni	09	1530MST 1550MST			0	0	10K	25K	Thunderstorm Wind (G61)
<b>Tooele County</b> Dugway	09	1710MST 1730MST			0	0	0	2K	Thunderstorm Wind (G54)
Microburst winds were measured in several locations in Washington county. The highest gust of 70 mph (61kts) occurred in Ivins. A microburst wind gust to 62 mph (54kts) was also measured on the Dugway Mesonet.									

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>UTAH, North, Central and South</u></b>									
<b>Millard County</b> 10 NW Delta	10	1229MST			0	0	0	0	Funnel Cloud
<b>Washington County</b> East Portion	10	1400MST 1600MST			0	0	20K	2K	Flash Flood
A funnel cloud was reported by a pilot (pirep) just northwest of Delta. Heavy thunderstorm rains caused flash flooding in eastern Washington county. Several roads were closed due to debris and flood waters. 1.59" of rain fell at the Zion National Park Headquarters that afternoon.									
<b>Washington County</b> Zion National Park to East Portion	11	0745MST 1100MST			0	0	200K	20K	Flood
1-2" of rain fell from thunderstorms and caused extensive flooding in eastern Washington county. The Zion Lodge had to be evacuated as the road leading to it collapsed due to an intense flood surge. Flood waters also destroyed a home in Springdale, filled basements in Rockville and forced numerous other road closures.									
<b>Utah County</b> Provo	12	1325MST 1330MST			0	0	0	0.80K	Hail (0.75)
<b>Salt Lake County</b> South Jordan	12	1330MST			0	0	0	0	Hail (0.75)
<b>San Juan County</b> (4BI)Blanding Muni A	12	1330MST 1400MST			0	0	20K	2K	Thunderstorm Wind (G61)
<b>Salt Lake County</b> 10 E Salt Lake City	12	1420MST	0.1	10	0	0	2K	1K	Tornado (F0)
<b>Davis County</b> 5 SW Syracuse	12	1600MST 1630MST			0	0	0	0	Waterspout
Severe thunderstorms occurred on this date in several spots across Utah. A cold core funnel cloud touched down for 5 seconds in a gentleman's backyard in Emigration Canyon. 2 Waterspouts were observed later over the marshes of the Great Salt Lake near Syracuse. A severe thunderstorm moved through the Blanding area and put down a microburst wind gust of 70 mph (61kts) and 4" of pea-sized hail. A plane was damaged at the Blanding Municipal Airport. 3/4" diameter hail was also observed from severe thunderstorms in South Jordan and Provo.									
<b>Emery County</b> Ferron	29	2035MST			0	0	0	0.50K	Hail (0.75)
A severe thunderstorm dropped 3/4" diameter hail in the Ferron area.									
<b>Tooele County</b> 15 S Tooele	30	1120MST			0	0	0	0.40K	Hail (0.75)
3/4" diameter hail was observed in Rush Valley from a passing severe thunderstorm.									
<b><u>UTAH, Northeast</u></b>									
<b>Grand County</b> Moab	12	0835MST 0845MST			0	0			Heavy Rain
A burst of rain produced street flooding. 0.60 of an inch of rain fell primarily within a 10 minute period.									
<b><u>VERMONT, North and Central</u></b>									
<b>Grand Isle County</b> Alburg	06	2000EST			0	0	10K		Thunderstorm Wind
A cold front moved southeast from Canada across Vermont during the night of Sunday, September 6th and triggered thunderstorms. Locally strong winds and hail accompanied a few of the storms. Specifically, near Alburg (Grand Isle county), strong winds blew down power lines.									
<b>Franklin County</b> St Albans Bay	06	2010EST			0	0	5K		Thunderstorm Wind
A cold front moved southeast from Canada across Vermont during the night of Sunday, September 6th and triggered thunderstorms. Locally strong winds and hail accompanied a few of the storms. Specifically, in St. Albans Bay (Franklin county), strong winds blew down trees.									
<b>Orleans County</b> Albany	06	2120EST			0	0	50K		Thunderstorm Wind

# Storm Data and Unusual Weather Phenomena

									September 1998
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>VERMONT, North and Central</u></b>									
<b>Orleans County</b> Greensboro	06	2125EST			0	0	10K		Thunderstorm Wind
<b>Orleans County</b> Craftsbury	06	2130EST			0	0			Hail (1.00)
A cold front moved southeast from Canada across Vermont during the night of Sunday, September 6th and triggered thunderstorms. Locally strong winds and large hail accompanied a few of the storms. One inch hail fell in Craftsbury. In Albany, strong winds moved a trailer off its foundation and a shed was destroyed. In Greenboro, trees and power lines were blown down.									
<b>Caledonia County</b> Sutton	06	2145EST			0	0	10K		Thunderstorm Wind
<b>Caledonia County</b> Sutton	06	2145EST			0	0			Tstm Wind/Hail
<b>Caledonia County</b> Burke Hollow	06	2150EST			0	0			Hail (1.00)
A cold front moved southeast from Canada across Vermont during the night of Sunday, September 6th and triggered thunderstorms. Locally strong winds and large hail accompanied a few of the storms. In Sutton, strong wind blew down trees with one half inch hail reported, while in Burke Hollow one inch hail occurred.									
<b>Caledonia County</b> Lyndonville	21	1618EST			0	0			Hail (1.75)
A strong cold front moved across Vermont during the late afternoon and evening. Thunderstorms developed along and ahead of the front. Golfball size hail fell near Lyndonville.									
<b>Essex County</b> Granby	21	1630EST			0	0			Hail (0.75)
<b>Essex County</b> Granby	21	1630EST			0	0	5K		Thunderstorm Wind
A strong cold front moved across Vermont during the late afternoon and evening. Thunderstorms developed along and ahead of the front. Strong thunderstorm winds blew down numerous trees in Granby accompanied by dime size hail.									
<b>Chittenden County</b> South Burlington	27	0320EST			0	0	10K		Lightning
Lightning struck a restaurant causing minor damage.									
<b>Franklin County</b> West Berkshire	27	1735EST			0	0	5K		Thunderstorm Wind
A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Locally strong winds and small hail accompanied a few of the storms. In West Berkshire (Franklin county), trees and power lines were blown down.									
<b>Orleans County</b> Derby Line	27	1755EST			0	0	10K		Thunderstorm Wind
A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Locally strong winds and small hail accompanied a few of the storms. In Derby Line (Orleans county), numerous trees and power lines were blown down. Many power outages reported.									
<b>Essex County</b> Island Pond	27	1800EST 1810EST			0	0	25K		Thunderstorm Wind
A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Locally strong winds, small hail and torrential downpours accompanied a few of the storms. In Island Pond (Essex county), numerous huge trees and power lines were blown down. Trees down across roads resulted in road closures. Power outages were reported.									
<b>Caledonia County</b> St Johnsbury	27	1800EST			0	0			Hail (0.88)
A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and was accompanied by thunderstorms. Nickle size hail occurred with a thunderstorm in St. Johnsbury (Caledonia county).									
<b>Franklin County</b> St Albans	27	1805EST			0	0			Thunderstorm Wind (G50)
A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Locally strong winds and small hail accompanied a few of the storms. In St. Albans (Franklin county), thunderstorm winds gusted to 58 mph (50 knots) along with pea size hail.									
<b>Franklin County</b> Sheldon	27	2120EST			0	0	50K		Thunderstorm Wind

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## VERMONT, North and Central

### **Franklin County**

#### **Swanton**

**27 2120EST 0 0 5K Thunderstorm Wind**

A cold front moved southeast from Canada across Vermont during the late afternoon and night of Sunday, September 27th and triggered thunderstorms. Locally strong winds and small hail accompanied a few of the storms. In Sheldon (Franklin county), numerous trees were uprooted by the strong thunderstorm wind and power lines were blown down with many power outages. Additionally, in Sheldon, the roof to a horse barn was blown away and a few roads were closed around Sheldon due to debris on the road. In Swanton, trees and power lines were blown down.

## VERMONT, South

### **Bennington County**

#### **Woodford**

**07 0300EST 0 0 5K Thunderstorm Wind**

### **Windham County**

#### **Londonderry**

**07 0305EST 0 0 3K Thunderstorm Wind**

A derecho ahead of a strong cold front, which had moved east from southern Ontario across New York, weakened considerably as it moved into southern Vermont during the predawn hours on the 7th. The derecho still had wind strong enough to down trees in the town of Woodford in Bennington County as well as the town of Londonderry in Windham county.

## VIRGIN ISLANDS

### **VIZ010-020-030**

#### **St. Croix - St. John - St. Thomas**

**21 0600AST 0 0 2M Hurricane**  
**22 0500AST**

Hurricane Georges began to affect the islands during the morning hours of September 21. The centre of Georges passed a few miles north of St. Croix at about 100 pm while continued to move to the west towards Puerto Rico. At the St. Croix Airport a maximum of 74 mph sustained winds and a peak gust of 91 mph were reported. Observed maximum rainfall during the two day period were 6.79 inches in St. Croix Airport and 5.26 inches in St. Thomas Airport.

Across the U.S. Virgin Islands no major damage was reported. Most of the damage was observed in St.Croix where trees were uprooted throughout the island, and some utility poles broke and power lines snapped. In two communities, the Paradise Mills Apartment Complex and the Estate Adventure Housing Complex, three residences lost their roofs and a trailer was completely demolished in a trailer park. Port Authority officials indicated 55 boats were beached or sunk by the hurricane, 35 on St. Thomas, 5 on St. Croix and 15 on St. John.

## VIRGINIA, East

### **Greensville County**

#### **Pleasant Shade**

**01 1530EST 0 0 2K Thunderstorm Wind**

Several trees down near Highway 58 and Brunswick Road.

### **Southampton County**

#### **Branchville**

**01 1600EST 0 0 Hail (0.75)**

### **New Kent County**

#### **1 S Lanexa**

**07 1515EST 0 0 5K Thunderstorm Wind**

Trees down, siding off a house and a tree fell on a car in a subdivision on top of a hill.

### **James City County**

#### **1 W Diascund**

**07 1520EST 0 0 2K Thunderstorm Wind**

Couple of trees down near Hicks Island. One tree blown down onto a trailer.

### **Southampton County**

#### **Capron**

**08 0802EST 0 0 Hail (1.00)**

### **Southampton County**

#### **Courtland**

**08 0814EST 0 0 Hail (0.75)**

### **Amelia County**

#### **Chula**

**28 1731EST 0 0 Hail (0.88)**

### **Southampton County**

#### **4 N Sebrell**

**28 2030EST 0 0 2K Thunderstorm Wind**

Few trees down on Route 35.

## VIRGINIA, Extreme Southwest

### **Lee County**

#### **1 N Pennington Gap**

**06 1450EST 0 0 Hail (1.75)**

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b>VIRGINIA, North</b>									
<b>VAZ025&gt;031-036&gt;042-050&gt;052-055&gt;057</b>									
<b>Augusta - Rockingham - Shenandoah - Frederick - Page - Warren - Clarke - Nelson - Albemarle - Greene - Madison - Rappahannock - Fauquier - Loudoun - Orange - Culpeper - Prince William - Stafford - Spotsylvania - King George</b>									
	<b>01</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>		<b>42.5M</b>	<b>Drought</b>
	<b>30</b>	<b>2359EST</b>							
High pressure was the dominant weather feature across Northern Virginia during the month of September. This brought a second straight month of mainly dry weather, aggravating the already present agricultural drought. Only 1.26 inches of rain fell at Dulles Airport during the month of September, 2.10 inches below normal. Page County reported 0.93 inches of rainfall during the month, as compared to the normal of 3.31 inches. Rappahannock County reported 0.94 inches of rainfall, compared to the normal of 3.10 inches. Orange County only received 4.85 inches of rain from July 1st to September 30th, 34% of normal. Other monthly rainfall totals included Frederick County at 0.75 inches, Culpeper County at 0.60 inches, and Loudoun County at 0.90 inches. The lack of rainfall also affected water levels along the Potomac River, the main water source for extreme Northern Virginia. The river level fell so low that water supply engineers discussed tapping two upstream reservoirs that had never been used.									
The lack of rainfall reduced crop yields significantly. Stafford, Fauquier, Spotsylvania, Loudoun, Frederick, Clarke, Warren, Page, Greene, Augusta, Shenandoah, Culpeper, and King George Counties asked to be declared agricultural disaster areas. Soybeans make up the state's 2nd largest cash crop, and this year's yields are estimated to be the lowest since the severe drought of 1993. By harvest time, the Virginia branch of the U.S. Department of Agriculture expected a 30% yield loss of corn and a 40% yield loss of soybeans across the state. Pasture land was hardest hit with a 65% yield loss reported.									
Stafford County reported soybean yields down 70%, corn yields down 50%, and hay yields down 40%. Fauquier and Culpeper Counties expected to loose around 50% of their corn crop. Augusta County reported alfalfa yields down 50% and the driest conditions in 11 years. Augusta County only received 40% of its normal rainfall from July to September, and the county extension agent reported \$7 million in damage to pasture and hay crop. Madison County estimated only 50% of the apple crop will be big enough to be sold as fresh crop at harvest. Loudoun County reported a 40-50% reduction in corn yield, and severe damage to the grain crop. Greene County reported a 30% loss in hay yield, and estimate the drought has cost the county around 7% of its agricultural economy.									
<b>Page County</b>									
<b>5 NE Stanley</b>									
	<b>02</b>	<b>0800EST</b>			<b>0</b>	<b>0</b>		<b>9K</b>	<b>Wild/Forest Fire</b>
	<b>03</b>	<b>1800EST</b>							
A wildfire, assisted by drought conditions, burned 175 acres of privately owned land in Basin Hollow, northeast of Stanley in Page County. The fire started around 9:00 AM EDT on the 2nd and was brought under control by 7:00 PM EDT on the 3rd. However, the fire did not burn itself out until the 10th. The Virginia Department of Forestry spent \$21,000 fighting the fire, and were assisted by the Stanley Volunteer Fire Department. One home had to be evacuated, but was not damaged. The estimated cost to re-seed the natural habitat damaged by the fire was \$8750.									
<b>Rockingham County</b>									
<b>4 N Elkton</b>									
	<b>07</b>	<b>2115EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Lightning</b>
Lightning struck a home in the Bel Aire subdivision of Verona at 10:15 PM EDT. The resulting fire caused \$10,000 damage to shingles and roof trussels on the home. In addition, an oak tree caught on fire along County Route 623 near Stanley after being hit by lightning.									
<b>Albemarle County</b>									
<b>Charlottesville Arpt</b>									
	<b>07</b>	<b>2142EST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>Lightning</b>
Lightning struck a home on Lambs Rd. in Charlottesville at 10:42 PM EDT. The resulting fire destroyed the roof of the home. Three fire fighters responding to the blaze were treated for smoke inhalation. The lightning storm also caused brief power outages for 2,000 customers in the area.									
<b>Rockingham County</b>									
<b>2 N Fulks Run</b>									
	<b>17</b>	<b>0000EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Wild/Forest Fire</b>
	<b>30</b>	<b>2359EST</b>							
A wildfire, possibly started by lightning, began on the 17th of September in the George Washington National Forest where timber and brush were extremely dry from the lack of rainfall. The fire occurred on Church Hill, 2 miles north of Fulks Run, just east of Hwy 229. The fire burned 152 acres before finally being extinguished on the 9th of November.									
<b>Prince William County</b>									
<b>Gainesville</b>									
	<b>17</b>	<b>1755EST</b>			<b>0</b>	<b>0</b>			<b>Heavy Rain</b>
<b>Greene County</b>									
<b>Countywide</b>									
	<b>17</b>	<b>1830EST</b>			<b>0</b>	<b>0</b>	<b>4K</b>		<b>Thunderstorm Wind</b>
Scattered thunderstorms developed across Northern and Central Virginia during the evening and produced damaging wind and brief heavy rainfall. Emergency management officials in Prince William County reported trees down in Standardsville at 6:55 PM EDT, and Gainesville reported 2.5 inches of rain from the storm. Also, several trees were reported down across Greene County by local emergency management officials at 7:30 PM EDT.									
<b>Stafford County</b>									
<b>South Portion</b>									
	<b>30</b>	<b>1720EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>

# Storm Data and Unusual Weather Phenomena

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed      Injured		Estimated Damage Property      Crops		Character of Storm
<b><u>VIRGINIA, North</u></b>									
<b>Spotsylvania County</b> <b>Brakenberg</b>	<b>30</b>	<b>1733EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
Scattered thunderstorms developed across central Virginia during the evening and produced damaging wind. Several trees were reported down on power lines across the southern half of Stafford County by fire and rescue units at 6:20 PM EDT, and trees were downed along Route 17 in the vicinity of Paynes Corner and Berea. Spotsylvania County EOC reported trees and limbs down near Brakenberg and 4 Mile Fork at 6:33 PM EDT.									
<b><u>VIRGINIA, Northwest</u></b>									
<b>Dickenson County</b> <b>Birchleaf</b>	<b>06</b>	<b>1537EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Dickenson County</b> <b>Countywide</b>	<b>08</b>	<b>0130EST</b> <b>0140EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
County officials reported scattered locations of tree damage.									
<b>VAZ003&gt;004</b>		<b>Dickenson - Buchanan</b>			<b>14</b>	<b>1100EST</b>			<b>Record Heat</b>
	<b>15</b>	<b>1800EST</b>							
The hottest temperatures of the summer occurred. Readings reached the lower 90s in the valleys. Clintwood reached 90 degrees, Birchleaf had 92 degrees.									
<b>Dickenson County</b> <b>Haysi</b>	<b>29</b>	<b>1536EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
<b>Buchanan County</b> <b>Dwight</b>	<b>29</b>	<b>1545EST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Buchanan County</b> <b>Oakwood</b>	<b>29</b>	<b>1630EST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
Trees were blown down, especially on the nearby ridges.									
<b><u>VIRGINIA, Southwest</u></b>									
NONE REPORTED.									
<b><u>WASHINGTON, Northeast</u></b>									
<b>Asotin County</b> <b>Clarkston</b>	<b>08</b>	<b>1700PST</b> <b>1830PST</b>			<b>0</b>	<b>0</b>	<b>30K</b>	<b>0</b>	<b>Flood</b>
Rainfall amounts of up to 0.87" fell over the Clarkston Valley, causing several streets to flood and mudslides closing roads.									
<b>Asotin County</b> <b>Clarkston</b>	<b>25</b>	<b>1715PST</b> <b>1900PST</b>			<b>0</b>	<b>0</b>	<b>30K</b>	<b>0</b>	<b>Flood</b>
Over 0.75" fell over the Clarkston Valley causing flooding on the Interstate bridge and prompting to be closed for two hours. Several roads were also under about a foot of water.									
<b><u>WASHINGTON, Northwest</u></b>									
NONE REPORTED.									
<b><u>WASHINGTON, Southeast</u></b>									
<b>Klickitat County</b> <b>Dallesport</b>	<b>06</b> <b>07</b>	<b>1325PST</b> <b>0300PST</b>			<b>0</b>	<b>0</b>			<b>Wild/Forest Fire</b>
A fire burned about 1,400 acres of grassland east of Dallesport. About 80 volunteer firefighters battled the blaze that was pushed by the wind and jumped roads several times. The fire caused the closure of Highway 14 for a while. No structure damage or injuries were reported.									
<b>WAZ025</b>		<b>East Slopes Southern Cascades</b>			<b>17</b>	<b>1330PST</b>			<b>High Wind (G40)</b>
A farmer observed high wind that blew over a pump house, a stock trailer, and wood fences. An apple tree was also uprooted.									
<b><u>WASHINGTON, Southwest</u></b>									
NONE REPORTED.									

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## WEST VIRGINIA, East

### **WVZ050-054>055 Hampshire - Pendleton - Hardy**

**01 0000EST 0 0 990K Drought**  
**30 2359EST**

High pressure was the dominant weather feature across Eastern West Virginia during the month of September. This brought a second straight month of mainly dry weather, aggravating the already present agricultural drought. Monthly local rainfall totals by county included Pendleton at 0.70 inches, Hardy at 1.42 inches, and 1.26 inches in Hampshire. The lack of rainfall significantly reduced crop yields in an area from Martinsburg to Franklin. Topsoil moisture condition was rated by 69% of farmers across the state as short or very short. In addition, many ponds and some wells in the region dried up, forcing livestock producers to carry water. The dry conditions dramatically affected hay and pasture lands, in turn affecting livestock winter field reserves. Soybean and crop yields were expected to be 30-50% of normal. The year's apple harvest was expected to be 9% lower than last year. Late season crops were said to be almost non-existent in some area.

## WEST VIRGINIA, North

### **Brooke County**

**Beechbottom 07 0735EST 0 0 2K Thunderstorm Wind**  
Thunderstorm winds downed several large tree limbs.

### **Brooke County**

**Bethany 07 0740EST 0 0 5K Thunderstorm Wind**  
Thunderstorm winds downed several trees and tree limbs.

## WEST VIRGINIA, Southeast

NONE REPORTED.

## WEST VIRGINIA, West

### **WVZ005>008 Wayne - Cabell - Mason - Jackson**

**01 0000EST 0 0 Monthly Rainfall**  
**30 2300EST**

The total monthly rainfall was less than an inch for the majority of this 4 county region. The rain on the 21st at the Tri State Airport near Huntington ended 33 consecutive days without measurable rain at that site. It was the longest dry stretch on record for Huntington, surpassing the 32 days in the autumn of 1963. Some representative rain totals were 0.40 inches at Wayne, 0.62 inches at Ripley, 0.64 inches at Lesage, and 0.69 inches at the Huntington Airport.

### **Cabell County**

**Huntington 06 1408EST 0 0 Hail (1.00)**  
**1415EST**

### **Harrison County**

**Wallace 07 1720EST 0 0 5K Thunderstorm Wind**

### **Harrison County**

**Lumberport 07 1742EST 0 0 10K Thunderstorm Wind**

### **Taylor County**

**Flemington to Simpson 07 1750EST 0 0 20K Thunderstorm Wind**  
**1755EST**

Numerous large trees were uprooted and large branches were snapped off. Minor damage occurred to siding on a few dwellings. One Simpson resident commented about the fallen trees by saying, "Those trees have been here forever. They were big when I was a child."

### **Barbour County**

**Arden 07 1800EST 0 0 2K Thunderstorm Wind**

### **Barbour County**

**5 E Philippi 07 1803EST 0 0 Hail (0.75)**

### **Mason County**

**3 W Southside 07 1810EST 0 0 1K Thunderstorm Wind**

Trees were uprooted along Route 29.

### **Barbour County**

**Philippi 07 1815EST 0 0 20K Lightning**

A church sustained minor damage from a small fire that was extinguish quickly. Another building in town had several bricks dislodged from one upper corner.

### **Putnam County**

**3 NW Fraziers Bottom 07 1815EST 0 0 2K Thunderstorm Wind**



# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		September 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	
Character of Storm									

## WEST VIRGINIA, West

Trees were down along Eighteenmile Creek..

### Kanawha County Charleston to Marmet

07 1850EST 1855EST 0 0 5K Thunderstorm Wind

Power lines and trees were knocked down.

### Nicholas County Countywide

07 1912EST 1920EST 0 0 10K Thunderstorm Wind

Scattered locations throughout the county reported tree damage. Electricity was out in the town of Richwood.

### WVZ005>011- 013>020-024>040- 046>047

Wayne - Cabell - Mason - Jackson - Wood - Pleasants - Tyler - Lincoln - Putnam - Kanawha - Roane - Wirt - Calhoun - Ritchie - Doddridge - Mingo - Logan - Boone - Clay - Braxton - Gilmer - Lewis - Harrison - Taylor - McDowell - Wyoming - Raleigh - Fayette - Nicholas - Webster - Upshur - Barbour - Pocahontas - Randolph  
14 1100EST 0 0 Record Heat  
15 1800EST

The hottest temperatures of the summer occurred. The dry weather pattern during the late summer contributed to this unusual mid September heat. Temperatures reached the mid and upper 90s in the lowlands, with upper 80s and lower 90s in the mountainous counties.

## WISCONSIN, Extreme Southwest

NONE REPORTED.

## WISCONSIN, Northeast

### Marinette County

15 W Crivitz 01 1445CST 0 0 Thunderstorm Wind (G50)

### Marinette County

Middle Inlet 01 1459CST 0 0 Thunderstorm Wind (G50)

### Marathon County

4 E Wausau 01 1533CST 0 0 Hail (0.75)

### Door County

Fish Creek 01 1555CST 0 0 Thunderstorm Wind (G55)

### Door County

Baileys Harbor 01 1605CST 0 0 Thunderstorm Wind (G55)

### Outagamie County

4 NNW Black Creek 01 1700CST 0 0 Hail (0.75)

### Brown County

Bellevue 01 1722CST 0 0 Hail (0.75)

### Kewaunee County

13 SW Kewaunee 01 1745CST 0 0 Thunderstorm Wind (G50)

### Winnebago County

10 WSW Oshkosh 01 1815CST 0 0 Hail (1.00)

### Winnebago County

Fisk 01 1822CST 0 0 Thunderstorm Wind (G50)

Thunderstorms with strong winds and hail moved across central and northeast Wisconsin. A few trees were knocked down across the region. Wind-driven hail caused minor damage to vehicles near Black Creek (Outagamie co.).

### Lincoln County

Tomahawk 25 0445CST 0 0 Lightning

Lightning struck an unoccupied house, listed for sale, near Tomahawk (Lincoln co.) during the morning of September 25. By the time firefighters arrived, the house was totally engulfed in flames.

### Wood County

8 SSE Wisconsin Rapids 25 2318CST 0 0 Hail (1.25)

### Waupaca County

Waupaca 25 2344CST 0 0 Hail (1.50)

### Waupaca County

Iola 26 0000CST 0 0 Hail (0.75)

# Storm Data and Unusual Weather Phenomena

September 1998

September 1998									
Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	
<b><u>WISCONSIN, Northeast</u></b>									
<b>Waupaca County</b> Weyauwega	26	0010CST			0	0			Hail (0.88)
<b>Outagamie County</b> New London	26	0012CST			0	0			Hail (1.25)
<b>Outagamie County</b> 2 N Hortonville	26	0015CST			0	0			Hail (1.75)
<b>Outagamie County</b> 2 S Shiocton	26	0015CST 0030CST			0	0			Hail (1.75)
<b>Outagamie County</b> Hortonville	26	0030CST			0	0			Hail (1.00)
<b>Outagamie County</b> 4 SE Shiocton	26	0030CST			0	0			Hail (2.00)
<b>Brown County</b> Howard	26	0057CST			0	0			Hail (1.75)
<b>Brown County</b> Ashwaubenon	26	0100CST			0	0			Hail (1.75)
<b>Brown County</b> Bellevue	26	0107CST			0	0			Hail (1.50)
<b>Brown County</b> Howard	26	0200CST 0430CST			0	0	5K		Flash Flood
<b>Shawano County</b> Angelica	26	0245CST			0	0			Hail (1.50)
<b>Brown County</b> Howard	26	0300CST			0	0			Thunderstorm Wind (G50)
<b>Brown County</b> Howard	26	0303CST			0	0			Hail (1.00)
<b>Brown County</b> Green Bay	26	0310CST			0	0			Hail (0.88)
<b>Kewaunee County</b> Kewaunee	26	0330CST			0	0			Thunderstorm Wind (G50)
<b>Lincoln County</b> 3 N Merrill	26	0645CST			0	0			Hail (0.75)
Numerous thunderstorms with large hail, heavy rain and strong winds rumbled across northern and east-central Wisconsin during the early morning of September 26. One of the hardest hit areas was Waupaca and western Outagamie counties, where numerous cars, mobile homes, and roof tops sustained damage from the wind driven hail. Tens of thousands of dollars in damage occurred. Another area hard hit was Brown county. Local flooding in Howard occurred after 3 inches of rain fell in only 2 hours, accompanied by large hail and strong winds.									
<b>Door County</b> Fish Creek	26	0947CST			0	0			Hail (1.75)
<b>Door County</b> Baileys Harbor	26	0949CST 0951CST			0	0			Hail (2.75)
A thunderstorm dropped hail the size of baseballs over Door county. No damage was reported.									
<b>Waushara County</b> Redgranite	26	1400CST			0	0			Lightning
Lightning struck an 80-ft pine tree, then burned out a phone box and blew the phones off the wall of a nearby house near Redgranite (Waushara co.).									
<b><u>WISCONSIN, Northwest</u></b>									
<b>Burnett County</b> Grantsburg	25	2350CST			0	0			Hail (1.00)
<b>Burnett County</b> Grantsburg	26	0000CST			0	0	50K		Thunderstorm Wind (G55)
A corn bin was lifted off its base and dashed into the side of a farm house. The wind speed is estimated.									
<b>Burnett County</b> Danbury	26	0015CST			0	0			Thunderstorm Wind (G50)

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## WISCONSIN, Northwest

Trees were blown down. The wind speed is estimated.

<b>Burnett County</b>									
6 W Siren	26	0030CST 0035CST			0	0			Hail (1.75)

The hail knocked out car and house windows and damaged a parked airplane.

## WISCONSIN, Southeast

<b>Marquette County</b>									
Westfield	01	1743CST			0	0			Hail (1.00)
<b>Columbia County</b>									
Friesland	01	1835CST			0	0			Hail (1.00)
<b>Columbia County</b>									
Portage	01	1840CST 1845CST			0	0			Hail (0.75)
<b>Dodge County</b>									
Randolph	01	1847CST			0	0			Hail (1.00)
<b>Dodge County</b>									
3 W Beaver Dam	01	1900CST			0	0			Hail (0.75)
<b>Columbia County</b>									
Arlington	01	1940CST			0	0			Hail (0.75)
<b>Washington County</b>									
4 S Hartford	01	1950CST			0	0			Hail (1.00)
<b>Waukesha County</b>									
Waukesha	01	2024CST			0	0			Hail (0.75)

A broken line of thunderstorms, moving southeast at 35 mph through central Wisconsin, tapped colder air aloft to produce scattered occurrences of large hail during the evening hours over southcentral and southeast Wisconsin. In addition, downburst winds knocked down trees and power lines near Portage in Columbia county, and three quarters of an inch of rain fell in 20 minutes near Randolph in Dodge county.

<b>Rock County</b>									
Johnstown Center	06	2244CST			0	0			Hail (1.00)
<b>Walworth County</b>									
Delavan to 2 S Elkhorn	06	2245CST 2250CST			0	0			Hail (0.75)

Scattered thunderstorms moving east-southeast through southcentral Wisconsin around 20 mph eventually clustered in eastern Rock and Walworth counties. They dropped some large hail and produced gusty winds to 50 mph. In southern Walworth county, 1.6 inches of rain fell in one hour, resulting in minor street flooding.

<b>WIZ065</b>	<b>Waukesha</b>								
13	1500CST 1700CST				0	0			Excessive Heat

High pressure over the southeast part of the country allowed southwest winds to pull very warm air into southern Wisconsin. The maximum temperature in the city of Waukesha reached 91, breaking the old record of 89 set back in 1952.

<b>WIZ063-065&gt;066-069</b>	<b>Dane - Waukesha - Milwaukee - Rock</b>								
27	1500CST				0	0			Excessive Heat
28	0600CST								

Southwest winds pulled very warm air into southern Wisconsin, allowing some temperature records to be broken. Janesville (Rock Co.) recorded a new daily record high of 89, breaking the old one of 84. Milwaukee reached 88 degrees, breaking the old one of 86 set back in 1873. The city of Waukesha topped out at 89, breaking the old record of 83 set in 1973. September 1998 was the warmest September since 1971 in Waukesha. During the overnight hours, both Madison and Milwaukee only dropped to 71, which became a new record high minimums for those locations.

## WISCONSIN, Southwest

<b>Clark County</b>									
Humbird	01	1540CST			0	0	25K		Hail (1.00)
<b>Jackson County</b>									
Hatfield	01	1545CST			0	0			Hail (0.75)
<b>Juneau County</b>									
Necedah	01	1703CST			0	0	15K		Hail (0.75)
<b>Adams County</b>									
4 N Dellwood	01	1710CST			0	0	20K		Hail (1.00)

# Storm Data and Unusual Weather Phenomena

September 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## WISCONSIN, Southwest

<b>Adams County</b>									
<b>Friendship</b>	<b>01</b>	<b>1720CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Adams County</b>									
<b>1 S Adams</b>	<b>01</b>	<b>1724CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Adams County</b>									
<b>1 E Grand Marsh</b>	<b>01</b>	<b>1740CST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Hail (1.00)</b>
Hail the size of dimes and quarters was reported by law enforcement officials and spotters.									
<b>Clark County</b>									
<b>Thorp</b>	<b>26</b>	<b>0040CST</b>			<b>0</b>	<b>0</b>	<b>30K</b>	<b>45K</b>	<b>Hail (1.50)</b>
<b>Buffalo County</b>									
<b>6 S Mondovi</b>	<b>26</b>	<b>0452CST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Hail (0.88)</b>
Law enforcement officials and a volunteer rainfall reporter observed hail ranging in size from nickels to ping-pong balls, which damaged some crops.									

## WISCONSIN, West

<b>Polk County</b>									
<b>Dresser</b>	<b>25</b>	<b>2315CST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.00)</b>
<b>Chippewa County</b>									
<b>Stanley</b>	<b>25</b>	<b>2335CST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
<b>Eau Claire County</b>									
<b>Eau Claire</b>	<b>25</b>	<b>2345CST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.75)</b>
<b>Polk County</b>									
<b>Lewis</b>	<b>26</b>	<b>0010CST</b>			<b>0</b>	<b>0</b>			<b>Hail (1.50)</b>

## WYOMING, Central and West

<b>Sweetwater County</b>									
<b>Rock Spgs</b>	<b>12</b>	<b>1715MST</b> <b>1930MST</b>			<b>0</b>	<b>0</b>			<b>Urban/Sml Stream Fld</b>
Primarily western sections of Rock Springs. Water reported to be 4 to 5 feet deep in some areas. Estimated rainfall of 1 to 2 inches in less than an hour over a small area, caused by slow-moving, intense thunderstorms.									
<b>Fremont County</b>									
<b>Dubois</b>	<b>12</b>	<b>1900MST</b> <b>2030MST</b>			<b>0</b>	<b>0</b>			<b>Urban/Sml Stream Fld</b>
Street flooding and some basements flooded in and around Dubois. Intense, slow-moving thunderstorms.									
<b>Fremont County</b>									
<b>Riverton</b>	<b>12</b>	<b>2010MST</b> <b>2130MST</b>			<b>0</b>	<b>0</b>			<b>Urban/Sml Stream Fld</b>
Some streets and sidewalks near downtown under 1 foot of water. Intense, slow-moving thunderstorms.									

## WYOMING, Extreme Southwest

NONE REPORTED.

## WYOMING, North Central

NONE REPORTED.

## WYOMING, Northeast

NOT RECEIVED.

## WYOMING, Southeast

NONE REPORTED.

# Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		January 1998
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Damage Crops	
Character of Storm									

## ADDITIONS/CORRECTIONS

### AMERICAN SAMOA

#### ASZ001>004

#### Swains - Tutuila - Manu'A - Rose

01 1600SST  
05 1000SST

0 0

Hurricane

Swains was critically stormed by Hurricane Ron on January 2, 1998. The Territorial Emergency Management Coordinating Office reported that all of the 49 residents of Swains Island were fine except for a few minor injuries. Most of the residential homes were destroyed, except for concrete buildings that withstood the strong winds. All of the residents took sheltered in one of the concrete buildings. One of the residents, a professional fishermen, estimated the sustained winds to be around 80-90 mph with higher gusts.

The highest peak gust recorded at WSO-Tafuna was 37 mph on January 3, 1998, with a rainfall amount of 2.51 from January 2-5, 1998. No injuries or damages reported from the other Samoan islands.

#### ASZ002

#### Tutuila

24 0700SST  
26 0600SST

0 0

Tropical Storm

Tropical Cyclone Tui first developed into a Tropical Disturbance around 01/24/0000Z near 9.0S 175.0W. Tropical Storm Tui generated winds of 40 to 55 knots that were recorded by the ARCs across Western Samoa. Numerous gusts to 35 knots were recorded at Tafuna Weather Station with a peak gust of 42 knots recorded on 01/25/98 at 4:00 am.

No damages or injuries reported from both Western and American Samoan Islands.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### **Macon County**

**South Portion**      **03**      **1610CST**      **0**      **0**      **Hail (1.75)**  
**1624CST**

Newspaper article showed golf ball size hail that fell near the Trousdale-Macon county border. Light to moderate hail damage was reported to private vehicles in Willette. Also, significant roof damage occurred to the Macon County Junior High on HWY 52 Bypass, south of Lafayette.

#### **Macon County**

**Willette**      **03**      **1620CST**      **0**      **0**      **500K**      **Thunderstorm Wind**  
**1624CST**

30 to 50 homes in the Willette-Jennings Creek area had light to moderate damage from strong thunderstorm winds. 2 barns were completely destroyed, and the roof was taken off the Willette Head Start Center. Most of the damages to homes were from broken windows and vinyl siding. There was roof damage to some homes as well.

#### **Davidson County**

**Inglewood**      **08**      **0200CST**      **0**      **0**      **5K**      **Thunderstorm Wind**

Tree fell on a car. A few bricks were out of a chimney.

#### **Davidson County**

**Donelson**      **08**      **0215CST**      **0**      **0**      **Thunderstorm Wind (G50)**  
**0216CST**

Local law enforcement reported trees and powerlines down.

#### **Trousdale County**

**Hartsville**      **08**      **0230CST**      **0**      **0**      **Thunderstorm Wind (G50)**  
**0235CST**

Public reported trees were blown down along HWY 141 near Hartsville.

#### **Wilson County**

**Northeast Portion**      **08**      **0230CST**      **0**      **0**      **Thunderstorm Wind (G50)**  
**0235CST**

Public reported trees were blown down along HWY 141 between Lebanon and Hartsville.

#### **Wilson County**

**Mt Juliet**      **08**      **0235CST**      **0**      **0**      **0.30K**      **Thunderstorm Wind**  
**0236CST**

Local law enforcement reported a light pole was down.

#### **Wilson County**

**East Portion**      **08**      **0241CST**      **0**      **0**      **Thunderstorm Wind (G50)**  
**0242CST**

Local law enforcement reported trees down.

#### **Lawrence County**

**2 W Lawrenceburg**      **08**      **0312CST**      **0**      **0**      **Hail (0.75)**

Dime size hail was reported by local law enforcement.

#### **Lawrence County**

**Ethridge**      **08**      **0315CST**      **0**      **0**      **Thunderstorm Wind (G50)**

Local law enforcement reported 2 trees were blown down.

#### **Marshall County**

**West Central Portion**      **08**      **0335CST**      **0**      **0**      **Hail (0.75)**

Spotter reported dime size hail.

#### **Decatur County**

**8 SW Decaturville**      **08**      **0940CST**      **0**      **0**      **Thunderstorm Wind (G50)**

Spotter reported large tree limbs down at Scotts Hill.

#### **Benton County**

**2 W Holladay**      **08**      **1004CST**      **0**      **0**      **Thunderstorm Wind (G50)**

County highway department reported 2 trees were blown down.

#### **Stewart County**

**Dover**      **08**      **1035CST**      **0**      **0**      **Hail (0.75)**

Sheriff reported dime size hail.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### Stewart County

**Dover**      **08**      **1035CST**                **0**      **0**           **Hail (1.50)**  
**1036CST**  
 Spotter reported ping pong size hail in the northwest part of town.

#### Wilson County

**Lebanon**      **08**      **1038CST**                **0**      **0**           **Hail (0.75)**  
 Public report of dime size hail.

#### Hickman County

**Northwest Portion**      **08**      **1045CST**                **0**      **0**           **Thunderstorm Wind (G50)**  
**1046CST**  
 Tennessee Highway Patrol reported 2 trees were blown down.

#### Wayne County

**3.2 W Cypress Inn**      **08**      **1050CST**                **0**      **0**           **Hail (0.75)**  
 Local law enforcement reported dime size hail.

#### Montgomery County

**2 W Clarksville**      **08**      **1100CST**                **0**      **0**           **Thunderstorm Wind (G60)**  
 SKYWARN Spotter reported 60 mph wind gust.

#### Montgomery County

**Northwest Portion**      **08**      **1105CST**                **0**      **0**           **Thunderstorm Wind (G50)**  
 County highway department reported 2 trees were blown down.

#### Jackson County

**Gainesboro**      **08**      **1120CST**                **0**      **0**           **Hail (0.75)**  
 Dime size hail reported by local law enforcement.

#### Lawrence County

**Fallriver**      **08**      **1125CST**                **0**      **0**           **Hail (1.00)**  
**1126CST**  
 Local EMA reported one quarter size hail.

#### Lawrence County

**5 SE Lawrenceburg**      **08**      **1125CST**                **0**      **0**           **Thunderstorm Wind (G50)**  
 Local law enforcement reported large limbs were blown down.

#### Overton County

**5 N Livingston**      **08**      **1130CST**                **0**      **0**           **Hail (0.75)**  
 Dime size hail reported by local law enforcement.

#### Giles County

**Pulaski**      **08**      **1147CST**                **0**      **0**           **Hail (0.75)**  
 Local law enforcement reported dime size hail.

#### Davidson County

**Donelson**      **08**      **1148CST**                **0**      **0**           **Thunderstorm Wind (G60)**  
 Local law enforcement reported 2 trees blown down.

#### Wilson County

**Mt Juliet**      **08**      **1150CST**                **0**      **0**           **Thunderstorm Wind (G52)**  
**1151CST**  
 Local law enforcement reported 60 mph wind gust.

#### Overton County

**10 SW Livingston**      **08**      **1155CST**                **0**      **0**           **Hail (0.75)**  
 Local law enforcement reported dime size hail.

#### Lincoln County

**Boonshill**      **08**      **1219CST**                **0**      **0**           **Hail (1.00)**  
 Local law enforcement reported quarter size hail.

#### Franklin County

**4 N Estill Spgs**      **08**      **1300CST**                **0**      **0**           **Hail (0.75)**  
 Local law enforcement reported dime size hail.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### Warren County

**Morrison**      **08**      **1305CST**                **0**      **0**                **Hail (0.75)**  
**1306CST**  
Dime size hail was reported by local law enforcement.

#### Moore County

**Lynchburg**      **08**      **1310CST**                **0**      **0**                **Thunderstorm Wind (G50)**  
**1311CST**  
Local law enforcement reported 2 trees were blown down.

#### Sequatchie County

**Cagle**      **08**      **1310CST**                **0**      **0**                **Hail (0.75)**  
Dime size hail was reported by local law enforcement.

#### Warren County

**Centertown**      **08**      **1310CST**                **0**      **0**                **Hail (0.75)**  
Dime size hail was reported by local law enforcement.

#### Van Buren County

**East Portion**      **08**      **1315CST**                **0**      **0**                **Hail (2.75)**  
**1325CST**  
Baseball size hail was reported by local law enforcement.

#### Van Buren County

**Piney**      **08**      **1315CST**                **0**      **0**      **10K**           **Hail (2.75)**  
**1316CST**  
Local law enforcement reported baseball size hail. The hail knocked out car windows and damaged roofs.

#### Bledsoe County

**West Central Portion**      **08**      **1330CST**                **0**      **0**                **Hail (1.75)**  
**1331CST**  
Park employee reported golf ball size hail at the golf shop in Fall Creek Falls State Park.

#### Wayne County

**Waynesboro**      **08**      **1700CST**                **0**      **0**                **Hail (1.50)**  
**1701CST**  
Storm spotter reported walnut size hail.

#### Lewis County

**Oak Grove**      **08**      **1730CST**                **0**      **0**      **1K**           **Thunderstorm Wind**  
Public reported wind damage to a trailer home.

#### Wayne County

**East Portion**      **08**      **1735CST**                **0**      **0**                **Hail (1.75)**  
**1736CST**  
Local EMA official reported widespread golf ball size hail.

#### Wayne County

**South Portion**      **08**      **1735CST**                **0**      **0**                **Hail (1.75)**  
Local EMA official reported widespread golf ball size hail.

#### Lawrence County

**Westpoint**      **08**      **1740CST**                **0**      **0**                **Hail (1.75)**  
**1741CST**  
EMA official reported golf ball size hail.

#### Lawrence County

**Westpoint**      **08**      **1740CST**                **0**      **0**                **Thunderstorm Wind (G52)**  
**1741CST**  
EMA official reported 60 mph wind gust.

#### Maury County

**Culleoka**      **08**      **1755CST**                **0**      **0**                **Hail (0.75)**  
Public report of dime size hail.

#### Lawrence County

**Lawrenceburg**      **08**      **1800CST**                **0**      **0**                **Hail (1.75)**  
EMA reported golf ball size hail just east of the city.



# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### Lawrence County

**Leoma**      **08**      **1800CST**      **0.5**      **200**      **0**      **0**           **Tornado (F0)**  
**1801CST**  
 SKYWARN Spotter identified a tornado. The tornado blew down trees.

#### Maury County

**Southwest Portion**      **08**      **1800CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
 EMA reported debris covering the road on U.S. HWY 43.

#### Lawrence County

**Lawrenceburg**      **08**      **1805CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
**1806CST**  
 EMA reported numerous trees that were 18 inches in diameter, were blown down on the southeast side of Lawrenceburg.

#### Wilson County

**6.2 S Mt Juliet**      **08**      **1815CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
 NWS employee reported trees were blown down.

#### Marshall County

**Chapel Hill**      **08**      **1830CST**           **0**      **0**           **Hail (1.00)**  
**1831CST**  
 EMA reported quarter size hail.

#### Marshall County

**Chapel Hill**      **08**      **1830CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
 EMA reported large tree limbs were down.

#### Bedford County

**Southwest Portion**      **08**      **1835CST**           **0**      **0**           **Hail (0.75)**  
 Sheriff's office reported dime size hail.

#### Lincoln County

**12 NNW Fayetteville**      **08**      **1835CST**           **0**      **0**           **Hail (0.75)**  
 Sheriff's office reported dime size hail at St. Petersburg.

#### Bedford County

**Countywide**      **08**      **1845CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
 Public reported many trees were blown down around the county.

#### Bedford County

**Shelbyville**      **08**      **1845CST**           **0**      **0**           **Hail (0.75)**  
 Public reported dime size hail.

#### Rutherford County

**5 E Christiana**      **08**      **1845CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
 NWS employee reported exit sign blown down over at mile marker 90 and 91, I-24 westbound.

#### Marshall County

**Petersburg**      **08**      **1847CST**           **0**      **0**           **Hail (0.75)**  
 EMA reported dime size hail.

#### Moore County

**Lynchburg**      **08**      **1850CST**           **0**      **0**           **Hail (1.75)**  
 Sheriff's office reported golf ball size hail.

#### Putnam County

**Cookeville**      **08**      **1855CST**           **0**      **0**           **Hail (1.75)**  
**1856CST**  
 EMA reported golf ball size hail.

#### Putnam County

**5 W Cookeville**      **08**      **1855CST**           **0**      **0**           **Thunderstorm Wind (G50)**  
**1856CST**  
 EMA reported trees were blown down.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### Coffee County

Manchester to 08 1900CST 1 200 0 0 50K Tornado (F1)  
1 E Manchester 1901CST

911 center reported numerous roofs off of buildings in downtown Manchester and also widespread wind damage.

#### Maury County

Southwest Portion 08 1910CST 0 0 5K Thunderstorm Wind  
1911CST

Local law enforcement reported wind damage to a building in southwest Maury county near the Lewis county line.

#### Warren County

Viola 08 1930CST 0 0 10K Thunderstorm Wind

NWS employee reported 2 barns damaged and trees down on HWY 127 south near Viola.

#### Sequatchie County

Dunlap 08 2000CST 0 0 Thunderstorm Wind (G50)

Local law enforcement reported trees down across the northern part of the county from Dunlap northward

#### Bledsoe County

Pikeville 08 2030CST 0 0 Thunderstorm Wind (G50)  
2031CST

Scattered reports of trees and power lines down.

#### Stewart County

Dover 16 0355CST 0 0 Thunderstorm Wind (G50)

Public reported a tree down on HWY 49 between Dover and Carlisle.

#### Robertson County

White House 16 0500CST 0 0 Thunderstorm Wind (G50)  
0501CST

Ham radio operator reported power lines down just west of White House on HWY 76 and Union Road.

#### Davidson County

Hermitage 16 0525CST 0 0 Flash Flood  
0830CST

NWS employee reported Dobson Chappel Road down to one lane due to high water. Culverts were overflowing.

#### Davidson County

Hermitage 16 0525CST 0 0 Hail (0.88)  
0526CST

NWS employee reported nickel size hail.

#### Davidson County

Hermitage 16 0530CST 0 0 Hail (1.75)  
0531CST

NWS employee reported golf ball size hail.

#### Davidson County

Hermitage 16 0625CST 0 0 Flash Flood  
0715CST

1/2 foot of water at Lebanon Road and Matterhorn Road.

#### Putnam County

Baxter to 16 0720CST 0 0 Thunderstorm Wind (G50)  
Cookeville 0728CST

EMA reported trees blown down between Baxter and Cookeville along I-40.

#### Wilson County

Mt Juliet 16 0725CST 0 0 Flash Flood  
0855CST

NWS employee reported water 6 to 8 inches deep covering intersection of S. Greenhill Road and Old Railroad Bed Road.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### **Putnam County**

Cookeville	16	0748CST 1030CST			0	0	10K		Flash Flood
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EMA official reported major street flooding. Some homes were also flooded.

#### **Sumner County**

Portland	16	1017CST 1018CST			0	0			Hail (0.75)
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Sheriff reported dime size hail.

#### **Sumner County**

Portland	16	1026CST 1027CST			0	0			Hail (0.88)
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County sheriff reported nickel size hail.

#### **Sumner County**

Westmoreland	16	1048CST 1049CST			0	0			Hail (0.88)
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Sheriff reported nickel size hail.

#### **Williamson County**

3 N Franklin	16	1127CST 1128CST			0	0			Hail (1.00)
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Trucker reported quarter size hail 3 miles north of Franklin on I-65.

#### **Rutherford County**

La Vergne	16	1151CST 1152CST			0	0			Hail (1.00)
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Public reported quarter size hail.

#### **Rutherford County**

Murfreesboro	16	1151CST 1152CST			0	0			Hail (1.00)
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Spotter reported quarter size hail.

#### **Rutherford County**

Smyrna	16	1151CST 1152CST			0	0			Hail (0.75)
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NWS employee reported dime size hail.

#### **Rutherford County**

Walterhill	16	1205CST 1206CST			0	0			Hail (1.00)
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Spotter reported quarter size hail.

#### **Decatur County**

Parsons	16	1322CST 1323CST			0	0			Hail (1.00)
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Spotter reported quarter size hail.

#### **Humphreys County**

Waverly	16	1325CST 1326CST			0	0			Hail (1.00)
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Sheriff reported quarter size hail.

#### **Dickson County**

8 N White Bluff	16	1350CST 1356CST			0	0			Hail (1.75)
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Spotter reported golf ball size hail covering the ground to a depth of 2 1/2 inches.

#### **Decatur County**

Parsons	16	1357CST 1358CST			0	0			Hail (1.00)
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EMA reported quarter size hail.

# Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### **Cheatham County**

3 NW Ashland City 16 1405CST 0 0 50K Hail (2.75)  
1406CST

Ham radio operator reported golf ball size hail. However, a newspaper article reported hail the size of baseballs damaged 35 to 50 homes.

#### **Dickson County**

White Bluff 16 1410CST 0 0 Hail (1.75)  
1411CST

Sheriff reported golf ball size hail.

#### **Humphreys County**

Waverly 16 1410CST 0 0 Hail (1.00)  
1411CST

Sheriff reported quarter size hail.

#### **Davidson County**

Nashville 16 1415CST 0 0 Hail (1.75)  
1416CST

Sheriff reported golf ball size hail in west Nashville on Charlotte Pike.

#### **Sumner County**

Hendersonville 16 1425CST 0 0 Hail (1.00)  
1426CST

County sheriff reported quarter size hail at junction of HWY 386 and Shackle Island Road.

#### **Davidson County**

Nashville 16 1434CST 0 0 Hail (0.75)

NWS employee reported dime size hail on Delta Queen Drive near Opryland.

#### **Davidson County**

Madison 16 1436CST 0 0 Hail (0.75)  
1437CST

Sheriff reported dime size hail.

#### **Davidson County**

Inglewood 16 1443CST 0 0 Hail (1.00)  
1444CST

NWS employee reported quarter size hail.

#### **Davidson County**

Nashville 16 1520CST 0 0 Hail (0.88)  
1521CST

County sheriff reported nickel size hail in the Green Hills area.

#### **Smith County**

Pleasant Shade 16 1550CST 0 0 Hail (1.75)  
1551CST

County sheriff reported golf ball size hail.

#### **Davidson County**

Madison 16 1620CST 0 0 Hail (1.00)  
1621CST

Ham radio operator reported quarter size hail.

#### **Dickson County**

Dickson 16 1650CST 0 0 Flash Flood  
1900CST

Local law enforcement reported widespread flooding in Dickson.

#### **Dickson County**

Dickson 16 1650CST 0 0 Thunderstorm Wind (G50)  
1651CST

Local law enforcement reported numerous trees were blown down

#### **Jackson County**

Gainesboro 16 1715CST 0 0 Hail (1.00)  
1716CST

Local law enforcement reported quarter size hail.

## Storm Data and Unusual Weather Phenomena

April 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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### ADDITIONS/CORRECTIONS

#### TENNESSEE, Central

##### **Jackson County**

**Gainesboro**

**16**

**1715CST**

**1716CST**

**0**

**0**

**Thunderstorm Wind (G50)**

Local law enforcement reported several trees were blown down.

##### **Maury County**

**5 S Columbia**

**16**

**1840CST**

**1841CST**

**0**

**0**

**Hail (0.75)**

Local law enforcement reported dime size hail.

# Storm Data and Unusual Weather Phenomena

May 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### MONTANA, West

#### Missoula County

**Missoula**      **26**      **1530MST**      **0**      **0**      **Thunderstorm Wind (G52)**  
Power lines reported down from thunderstorm winds.

#### Missoula County

**Missoula Arpt**      **26**      **1540MST**      **0**      **0**      **Hail (0.75)**  
Hail to 3/4 inch was reported northwest of Missoula airport, near the U.S. 93/Interstate 90 interchange.

#### Flathead County

**Bigfork**      **26**      **1700MST**      **0**      **0**      **Thunderstorm Wind (G52)**  
Wind gusts to 60 mph were reported in a thunderstorm at Big Fork and Echo Lake.

#### Powell County

**Garrison**      **26**      **1700MST**      **0**      **0**      **Thunderstorm Wind (G52)**  
**1730MST**

Thunderstorm winds broke off a 4 inch diameter branch of a Cottonwood tree.

#### MTZ001

#### Kootenai/Cabinet Region

**26**      **1700MST**      **0**      **0**      **58K**      **Flood**  
**27**      **0800MST**

Fifteen hour rainfall totals ranging from 2.42 to 3.11 inches caused flooding by the morning of the 27th, of the Yaak River north of Troy and on Flower Creek and Parmenter Creek in Libby. Six homes and Plummer School were flooded. A foot bridge was washed out and the stream channel shifted.

#### Missoula County

**Evato**      **26**      **2000MST**      **0**      **0**      **Flood**

Rainfall in excess of one inch in 4 hours caused street flooding on many streets in Missoula while O'Keefe Creek, south of Evato, was out of its banks.

### OHIO, East

#### OHZ058

#### Guernsey

**03**      **0500EST**      **0**      **0**      **Flood**  
**05**      **2000EST**

Heavy rains associated with a slow moving upper low produced flooding over a large part of east central Ohio in the Muskingum River Basin. Minor flooding occurred at Cambridge, Ohio where the Wills Creek went above its 15 foot flood stage at 6 am EDT May 3rd. Wills Creek crested at 17.5 feet at Cambridge at 7 am May 4 and receded below flood stage at 9 pm May 5.

# Storm Data and Unusual Weather Phenomena

June 1998

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### GEORGIA, Southeast

#### **Long County**

**Ludowici**      **29**      **1500EST**           **0**      **0**           **Thunderstorm Wind (G50)**  
**1505EST**  
Trees down.

#### **Liberty County**

**Midway**      **29**      **1520EST**           **0**      **0**           **Hail (1.00)**  
**1523EST**

### ILLINOIS, Central

#### **Knox County**

**Galesburg**      **18**      **1700CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
Thunderstorm winds blew down several power lines in Galesburg.

#### **Fulton County**

**Farmington to**      **18**      **1740CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
**Norris**      **1750CST**  
Thunderstorm winds blew down numerous trees, tree limbs, and power lines in Farmington and Norris. Also, the winds destroyed a barn and damaged a large storage building. No damage estimate was available.

#### **Peoria County**

**Elmwood to**      **18**      **1742CST**           **0**      **0**           **Thunderstorm Wind (G52)**  
**Peoria**      **1811CST**  
Thunderstorm winds blew down numerous trees, tree limbs, and power lines in an area extending from Elmwood to Peoria. Some of the trees fell onto homes causing structural damage. No injuries were reported and no damage estimate was available.

#### **Cass County**

**Beardstown**      **18**      **1745CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
**1755CST**  
Thunderstorm winds blew down a tree onto a house and another one fell onto a car in Beardstown. No injuries were reported and no damage estimate was available.

#### **Schuyler County**

**2 SE Rushville**      **18**      **1745CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
Thunderstorm winds blew down several trees, some of which caused damage to a home two miles southeast of Rushville. Also, numerous power lines and tree limbs were blown down. No injuries were reported and no damage estimate was available.

#### **Mason County**

**Countywide**      **18**      **1755CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
**1830CST**  
Thunderstorm winds blew down numerous trees, tree limbs, and power lines countywide.

#### **Stark County**

**Bradford**      **18**      **1800CST**           **0**      **0**      **0**      **Hail (0.75)**

#### **Morgan County**

**Waverly**      **18**      **1805CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
Thunderstorm winds blew down several power lines and power poles in Waverly.

#### **Marshall County**

**Sparland to**      **18**      **1807CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
**4 E Lacon**      **1823CST**  
Thunderstorm winds blew down several trees, numerous tree limbs, and damaged a grain elevator. No injuries were reported and no damage estimate was available.

#### **Tazewell County**

**Countywide**      **18**      **1817CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
**1850CST**  
Thunderstorm winds blew off part of a roof of a shopping center in Morton. Some of the debris damaged several vehicles in the adjacent parking lot. In Washington, a construction trailer was blown over. Countywide numerous trees, tree limbs, and power lines were blown down. No injuries were reported and no damage estimate was available.

#### **Woodford County**

**Metamora**      **18**      **1830CST**           **0**      **0**      **0**      **Thunderstorm Wind**  
Numerous large tree limbs were blown down in Metamora.

# Storm Data and Unusual Weather Phenomena

June 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### ILLINOIS, Central

#### **Sangamon County**

**Farmingdale to Chatham** 18 1840CST 1858CST 0 0 Thunderstorm Wind (G61)

Several trees, tree limbs, and power lines were blown down in an area between Farmingdale and Chatham.

#### **McLean County**

**1 W Bloomington** 18 1904CST 0 0 0 0 Thunderstorm Wind

A large tree was snapped off 4 to 5 feet above the ground one mile west of Bloomington, next to I-55. No structural damage or injuries were reported.

#### **Christian County**

**Kincaid to Pana** 18 1951CST 2020CST 0 0 Thunderstorm Wind (G52)

Numerous trees, tree limbs, and power lines were blown down in an area extending from Kincaid to Pana. In Pana, one of the fallen trees damaged a car. No one was injured and no damage estimate was available.

#### **Champaign County**

**Philo** 18 2008CST 0 0 0 Hail (1.00)

#### **Champaign County**

**Tolono** 18 2010CST 0 0 0 Thunderstorm Wind

A large tree was blown down in Tolono. No injuries or structural damage were reported.

#### **Shelby County**

**Moweaqua to Windsor** 18 2020CST 2045CST 0 0 0.30K Thunderstorm Wind

Trees, tree limbs, and power lines were blown down in an area extending from Moweaqua to Windsor. In Windsor, one tree fell onto some playground equipment causing approximately \$300 in damage. No injuries were reported.

#### **Vermilion County**

**Danville** 18 2030CST 0 0 Thunderstorm Wind (G60)

#### **Moultrie County**

**Sullivan** 18 2037CST 0 0 Thunderstorm Wind (G52)

#### **Coles County**

**Mattoon** 18 2055CST 0 0 Thunderstorm Wind (G61)

Numerous trees were blown down all over town.

#### **Cumberland County**

**Neoga** 18 2100CST 0 1 0 Thunderstorm Wind

Thunderstorm winds blew over a semi on I-57 near Neoga. The driver was ok, while his passenger sustained minor injuries.

#### **Effingham County**

**Effingham** 18 2118CST 0 0 0.40K 0 Thunderstorm Wind

Numerous trees, tree limbs, and power lines were blown down in Effingham. One small tree landed on a car causing minor damage. No one was injured and damage was estimated around \$400.

#### **Clark County**

**1 S Martinsville** 18 2125CST 0 0 0 Thunderstorm Wind

A large tree was blown down across North Creek Road about one mile south of Martinsville.

#### **Clay County**

**Xenia to Flora** 18 2205CST 2220CST 0 0 0 Thunderstorm Wind

Numerous trees and power lines were blown down in an area extending from Xenia to Flora. No injuries were reported.

### MONTANA, Central

#### **Teton County**

**15 NE Dutton** 01 1300MST 1330MST 0 0 1K 1M Tstm Wind/Hail

#### **Pondera County**

**12 E Brady** 01 1300MST 1330MST 0 0 1K 1M Tstm Wind/Hail

#### **Chouteau County**

**2 SW Shonkin** 19 1430MST 1 20 0 0 50K Tornado (F1)



# Storm Data and Unusual Weather Phenomena

June 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### MONTANA, Central

<b>MTZ013</b>		<b>Fergus / Judith Basin</b>							
	27	1030MST			0	0			High Wind (G64)
<b>Hill County</b>									
25 S Havre to	27	2200MST			0	0	233K		Flash Flood
15 S Havre	28	0400MST							
<b>Lewis And Clark County</b>									
Wolf Creek	30	1520MST			0	0			Hail (1.00)
<b>Teton County</b>									
12 W Fairfield	30	1750MST			0	0			Hail (1.00)
<b>Judith Basin County</b>									
Hobson	30	1820MST			0	0			Hail (0.75)
<b><u>SOUTH CAROLINA, South Coastal</u></b>									
<b>Charleston County</b>									
Mc Clellanville	10	1200EST 1205EST			0	0			Hail (0.75)
<b>Charleston County</b>									
Charleston to	10	1300EST 1310EST			0	0			Waterspout
2 E Charleston									
Several waterspouts reported by Harbor Pilot and public in Charleston Harbor.									
<b>Colleton County</b>									
Cottageville	10	1320EST 1323EST			0	0			Thunderstorm Wind (G50)
Trees down.									
<b>Colleton County</b>									
3 NE Walterboro	10	1407EST 1410EST			0	0			Hail (0.75)
<b>Hampton County</b>									
Hampton	10	1510EST 1514EST			0	0			Thunderstorm Wind (G50)
Trees and powerlines down.									
<b>Beaufort County</b>									
Sheldon to	10	1530EST 1538EST			0	0			Thunderstorm Wind (G50)
4 E Beaufort									
Powerlines down.									
<b>Allendale County</b>									
Allendale	10	1540EST 1544EST			0	0			Thunderstorm Wind (G50)
Trees down.									

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### INDIANA, Central

INZ028>029-035-  
043>044-051-060-  
067>068

Warren - Tippecanoe - Fountain - Vermillion - Parke - Vigo - Sullivan - Knox - Daviess

01 0000EST 0 0 Flood  
12 0700EST

Flooding continued from the end of June in these counties. Additional rainfall of several inches occurring on both the 4th and the 7th kept the Wabash and River and lower portions of the White River anywhere from one to over six foot above flood stage. This again affected mainly agricultural lands and low lying roads near the rivers. Once again, as in June, these high water levels impacted the same crop areas either destroying or significantly impacting the eventual harvests this year.

Tippecanoe County  
West Lafayette

04 0130EST 8 120 0 0 200K Tornado (F1)  
0140EST

Tornado damaged several houses and blew down numerous trees and power lines near North River Road and Happy Hollow Road.

Daviess County  
Countywide

07 0600EST 0 0 Urban/Sml Stream Fld  
1100EST

Greene County  
Countywide

07 0600EST 0 0 Urban/Sml Stream Fld  
1100EST

Knox County  
Countywide

07 0600EST 0 0 Urban/Sml Stream Fld  
1100EST

Sullivan County  
Countywide

07 0600EST 0 0 Urban/Sml Stream Fld  
1100EST

Rain amounts of two to four inches caused widespread street flooding and brought many streams above bankfull.

Knox County  
Vincennes

07 0745EST 1 0 Lightning  
Lightning struck and killed a 45 year old male in a parking lot at the Southwest Indiana Regional Youth Village.

M45OU

Daviess County  
Countywide

07 1700EST 0 0 Flood  
1900EST

Knox County  
Countywide

07 1700EST 0 0 Flood  
1900EST

Sullivan County  
Countywide

07 1700EST 0 0 Flood  
1900EST

A second round of thunderstorms during the afternoon added several more inches of rainfall to these counties which experienced two to four inch rains that morning. This resulted in a round of flash flooding that placed many streams out of their banks and across roadways. County sheriffs reported many roads under water during the early evening. Several other roads running near streams were also washed out by high water levels, especially in Knox County.

Hendricks County  
Brownsburg

19 0900EST 0 1 Lightning  
Lightning struck a man at a golf course.

Hamilton County  
Arcadia

19 0919EST 0 0 Thunderstorm Wind (G65)

Marion County  
Oaklandon

19 0940EST 0 0 Hail (0.75)  
Reported by TV meteorologist.

Marion County  
Beech Grove

19 0950EST 0 0 Hail (1.75)

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### INDIANA, Central

#### Vermillion County

Cayuga	19	1800EST 1808EST			0	0	2K		Thunderstorm Wind
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Thunderstorm winds blew down trees and power lines in Cayuga and neighboring Eugene.

#### Clinton County

Forest	19	1830EST 1835EST			0	0			Hail (1.75)
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Hail reportedly covered the ground.

#### Howard County

Russiaville	19	1847EST 1850EST			0	0			Hail (0.75)
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#### Tipton County

Windfall	19	1855EST 1857EST			0	0			Hail (1.00)
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#### Boone County

Lebanon	19	1900EST			0	1	10K		Thunderstorm Wind
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Tree blown down on house trapped man underneath, seriously injuring him.

#### Hamilton County

Sheridan	19	1935EST 1937EST			0	2	5K		Thunderstorm Wind
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Thunderstorm winds blew down the second story of a building under construction injuring two.

#### Hancock County

New Palestine	19	2000EST 2008EST			0	0	1.5K		Thunderstorm Wind
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Thunderstorm winds blew down several trees, one which landed on a pickup truck.

#### Hamilton County

2 W Noblesville	19	2019EST 2020EST			0	0			Hail (0.75)
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#### Rush County

Rushville	19	2034EST 2040EST			0	0	1K		Thunderstorm Wind (G51)
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Thunderstorm winds to 60 mph blew down trees and power lines.

#### Delaware County

Central Portion	19	2114EST 2119EST			0	0			Hail (1.75)
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#### Hamilton County

Cicero	19	2204EST 2206EST			0	0			Hail (0.88)
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#### Henry County

Middletown	19	2222EST 2224EST			0	0	0.50K		Thunderstorm Wind
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Two foot diameter tree blown down.

#### Hancock County

Westland to 6 W Westland	19	2310EST			0	0			Hail (1.00)
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#### Rush County

1 E Arlington	19	2343EST 2345EST			0	0	0.50K		Thunderstorm Wind
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Trees blown down.

#### Rush County

Central Portion	20	0004EST 0014EST			0	0	5K		Thunderstorm Wind
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Gas pumps blown over in Rushville while trees were blown down in Arlington.

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### INDIANA, Central

<b>Marion County</b> (Ind)Indnpls Intl Ar	20	0117EST			0	0			Thunderstorm Wind (G52)
<b>Johnson County</b> Greenwood	20	0130EST 0132EST			0	0			Thunderstorm Wind (G52)
<b>Morgan County</b> Countywide	20	0140EST 0145EST			0	0	3K		Thunderstorm Wind
		Numerous trees and power lines downed.							
<b>Marion County</b> Beech Grove	20	0145EST			0	0	1K		Thunderstorm Wind
		Trees and power lines blown down.							
<b>Shelby County</b> Central Portion	20	0200EST 0205EST			0	0	2K		Thunderstorm Wind
		Tree limbs and power lines taken down.							
<b>Decatur County</b> Greensburg	20	0220EST 0240EST			0	0	3K		Thunderstorm Wind
		Trees blown down. Windows in apartments blown out.							
<b>Johnson County</b> Central Portion	20	0225EST			0	0	2K		Thunderstorm Wind
		Trees downed.							
<b>Bartholomew County</b> Countywide	20	0228EST 0245EST			0	0	3K		Thunderstorm Wind
		Trees and power lines blown down.							
<b>Decatur County</b> Greensburg	20	0300EST			0	0	1K		Thunderstorm Wind
		More trees downed by another storm.							
<b>Johnson County</b> Countywide	20	0300EST 0700EST			0	0			Urban/Sml Stream Fld
		Thunderstorms occurring over a 5 hour period producing up to 4 inches of rain caused widespread ponding of water on county roads.							
<b>Bartholomew County</b> Hope	20	0330EST 0332EST			0	0	0.50K		Thunderstorm Wind
		Several trees blown down again.							
<b>Johnson County</b> Countywide	20	0330EST 0335EST			0	0	1K		Thunderstorm Wind
		Yet another round of storms brought down trees and power lines.							
<b>Bartholomew County</b> Countywide	20	0600EST 1700EST			0	0			Flash Flood
<b>Decatur County</b> Southwest Portion to Countywide	20	0600EST 1700EST			0	0			Flash Flood
<b>Jackson County</b> Countywide	20	0600EST 1700EST			0	0			Flash Flood

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### INDIANA, Central

#### Jennings County

West Portion	20	0600EST 1700EST			0	0			Flash Flood
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Rainfall amounts of two to over eight inches falling in a four to six hour time frame resulted in widespread flash flooding across these counties. The heaviest rainfall was near Columbus where over eight inches of rain fell during the early morning hours of the 20th. This turned out to be the worst flooding ever for parts of Bartholomew County. In Columbus, numerous homes and businesses were flooded, requiring evacuations in some cases. Despite the rapid and significant flooding, no injuries or deaths were reported. The rapid runoff also led to very quick flooding of the East Fork White River tributaries in the area.

#### INZ064-071

#### Bartholomew - Jackson

	20	1500EST			0	0			Flood
	22	0700EST							

Rainfall amounts from two to nearly ten inches across Bartholomew and northern Jackson Counties resulted initially in flash flooding, particularly in Columbus, as described in an associated Flash Flood entry. This water quickly brought the East Fork White River and many of its tributaries up to as much as six feet above flood stage impacting agricultural lowlands and low lying roads along these streams. As in other cases this summer, this did impact crop yields but this floods duration was rather short and had a lesser affect than did the June 1998 floods in these counties.

#### INZ028>029-035- 043>044-051-060

#### Warren - Tippecanoe - Fountain - Vermillion - Parke - Vigo - Sullivan

	22	0000EST			0	0			Flood
	31	0700EST							

Heavy rainfall from two to ten inches on the 22nd in the Eel River basin of North Central Indiana resulted in another round of flooding of the Wabash River from Lafayette to Sullivan. Water levels reached up to six foot over flood stage and were comparable to the June 1998 floods along this stretch of river. Once again, agricultural lands and low lying roads were the only areas affected. And once again, the flooded crops were either destroyed or severely damaged. Fortunately, the affected crops only account for a small percentage of Indiana's tillable lands.

#### Howard County

Countywide	22	0430EST 0700EST			0	0			Flood
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Rapid rainfall amounts of 1 to 3 inches quickly flooded streets and smaller streams across the county, especially in Greentown.

#### Carroll County

Countywide	22	0430EST 0930EST			0	0			Urban/Sml Stream Fld
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#### Delaware County

Countywide	22	0500EST 0930EST			0	0			Urban/Sml Stream Fld
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#### Madison County

Countywide	22	0500EST 0930EST			0	0			Urban/Sml Stream Fld
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#### Randolph County

Countywide	22	0500EST 0830EST			0	0			Urban/Sml Stream Fld
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#### Tipton County

Countywide	22	0500EST 0930EST			0	0			Urban/Sml Stream Fld
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Rainfall up to two inches in less than two hours resulted in rapid flooding of streets in these counties. This was the south extent of a more significant rain across Wabash county. Many streams overtopped their banks due to rain within their county and due to water levels from upstream rains.

#### Madison County

4 S Anderson	22	0430EST 0435EST			0	0	0.50K		Thunderstorm Wind
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Thunderstorm winds blew down trees and blew the roof off a lean-to.

#### Delaware County

5 SE Muncie	22	0500EST			1	0			Lightning
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Man fatally struck by lightning while fishing at Prairie Creek Reservoir during pre-dawn hours.

M71BO

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## ADDITIONS/CORRECTIONS

### INDIANA, Central

#### **Vermillion County**

**Eugene**      **22**      **1456EST**           **0**      **0**      **0.50K**      **Thunderstorm Wind**  
Tree blown down across road.

#### **Parke County**

**Marshall**      **22**      **1605EST**           **0**      **0**           **Thunderstorm Wind (G56)**  
**1607EST**

### NEW MEXICO, Southeast

#### **NMZ027>029**      **Guadalupe Mountains Of Eddy County - Eddy County Plains - Lea**

**01**      **0000MST**      **0**      **0**           **Drought**  
**31**      **2359MST**

Drought conditions continued in Southwest Texas and Southeast New Mexico. Agricultural losses will be great but will not be included until the end of the drought or the end of the harvest when totals are calculated. Rains were a little more plentiful in July than in the April through June period, but not nearly enough for the drought conditions to be eased.

#### **Eddy County**

**Malaga**      **05**      **1800MST**           **0**      **0**      **0.50K**      **Thunderstorm Wind**  
Several trees were uprooted along Duarte Road in Malaga.

#### **Eddy County**

**Otis**      **05**      **1800MST**           **0**      **0**      **8K**      **Thunderstorm Wind**  
Two barns and a carport were destroyed and three utility poles were downed near Otis.

#### **Eddy County**

**3 E Malaga**      **05**      **1810MST**           **0**      **0**      **10K**      **Thunderstorm Wind**  
**1830MST**

A wet microburst caused damage along Duarte Rd. east of Malaga. A mobile home lost its roof, two pole barns were destroyed, and a carport was heavily damaged.

#### **Eddy County**

**Otis**      **05**      **1810MST**           **0**      **0**      **2.5K**      **Thunderstorm Wind**  
A wet microburst knocked down 3 utility poles along U.S. Highway 285 in Otis.

#### **Eddy County**

**(Cnm)Carlsbad Arpt**      **14**      **1730MST**           **0**      **0**           **Thunderstorm Wind (G54)**  
The Cavern City Airport Observer reported a thunderstorm wind from 300 degrees at 54 knots.

### OKLAHOMA, Western, Central and Southeast

#### **Kay County**

**Tonkawa**      **01**      **0545CST**           **0**      **0**           **Flash Flood**  
**0645CST**

Numerous thunderstorms developed over Kay County during the early morning of the 1st resulting in water flowing over many roadways in Tonkawa, Blackwell, Ponca City, and Newkirk. The water department in Blackwell measured 3.5 inches of rain for a 5 hour period before flooding started.

#### **Atoka County**

**Caney**      **02**      **1728CST**           **0**      **0**           **Hail (1.00)**  
**1740CST**

#### **Kingfisher County**

**Kingfisher**      **07**      **0100CST**           **0**      **0**      **0.20K**      **Lightning**  
Lightning struck a power pole behind Southside Auto Body causing power to be out for 4 hours on the south side of the city.

#### **Custer County**

**Clinton**      **07**      **1630CST**           **0**      **0**      **34K**      **Thunderstorm Wind**

#### **Custer County**

**Weatherford**      **07**      **1630CST**           **0**      **0**      **10K**      **Thunderstorm Wind**

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

#### **Washita County**

4 NW Bessie	07	1730CST			0	0			Thunderstorm Wind (G50)
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Measured by Oklahoma Mesonet.

#### **Seminole County**

2 E Little	07	1807CST			0	0	0.01K		Thunderstorm Wind (G52)
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#### **Dewey County**

Leedey	07	1833CST			0	0	0.01K		Thunderstorm Wind
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#### **Ellis County**

9 S Arnett	07	1835CST			0	0	7K		Thunderstorm Wind
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#### **Ellis County**

Arnett	07	1845CST			0	0	0.01K		Thunderstorm Wind
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#### **Caddo County**

Eakly	07	1849CST			0	0	15K		Thunderstorm Wind
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#### **Dewey County**

Vici	07	1850CST			0	0	1K		Thunderstorm Wind
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#### **Caddo County**

Alfalfa	07	1853CST			0	0			Hail (0.75)
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#### **Caddo County**

Alfalfa	07	1853CST			0	0	3K		Thunderstorm Wind
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#### **Washita County**

1 NE Cowden	07	1915CST			0	0			Hail (0.75)
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#### **Ellis County**

Fargo	07	1930CST			0	0			Thunderstorm Wind (G52)
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#### **Grady County**

2 SSW Minco	07	1945CST 1950CST			0	0			Thunderstorm Wind (G72)
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Winds gusted to 58 mph at 1945 CST, measured by Oklahoma Mesonet. Winds gusted to 83 mph at 1950 CST, also measured by Oklahoma Mesonet.

#### **Woodward County**

Ft Supply	07	1950CST			0	0			Thunderstorm Wind (G56)
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#### **Ellis County**

17 N Gage	07	2000CST			0	0			Thunderstorm Wind (G52)
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#### **Harper County**

11 E Buffalo	07	2015CST 2035CST			0	0	0.01K		Thunderstorm Wind
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Scattered severe thunderstorms developed over western and central Oklahoma during late afternoon and early evening of the 7th resulting in numerous reports of wind damage and some large hail. In the city of Clinton in Custer County thunderstorm winds toppled a semi-truck trailer at Interstate 40 and South 28th St., ripped apart a camper trailer on Petty Lane, damaged a roof at Washington Elementary and a house in the 1200 block of Avant in Neptune Park. Several mobile homes and house roofs were damaged in Weatherford in Custer County. Damaging winds from another severe thunderstorm 2 miles east of Little in Seminole County downed large limbs from a pecan tree. Large limbs were also blown down near Leedey in Dewey County. Thirteen high line poles and one tree were downed 9 miles southeast of Arnett in Ellis County leaving parts of Arnett without power for 12 hours. An observer in the same location also recorded 3 inches of rain during the storm. As the severe thunderstorm moved north to near Arnett, large limbs were blown off of 2 elm trees. In Caddo County near Eakly, severe thunderstorm winds damaged a school, blew down barns and fences, damaged many other barn roofs, and also blew the roof off from a set of bleachers at the ballpark. The same severe thunderstorm was responsible for ripping a barn roof off and destroying several awnings at a baseball park in Alfalfa, also in Caddo County. In Vici in Dewey County a 300 gallon tank was blown into a nearby house. Lastly, a severe thunderstorm 11 miles east of Buffalo in Harper County lasted for 20 minutes knocking large tree limbs from 2015 CST to 2035 CST.

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

<b>OKZ025</b>	<b>Oklahoma</b>								
	<b>09</b>	<b>1100CST</b>			<b>1</b>	<b>0</b>			<b>Excessive Heat</b>
	A 73 year-old man died in his home in Oklahoma City due to the excessive heat.								
	M73PH								
<b>OKZ019</b>	<b>Logan</b>								
	<b>10</b>	<b>1100CST</b>			<b>1</b>	<b>0</b>			<b>Excessive Heat</b>
	A 79 year-old man died in his mobile home in Mulhall due to the excessive heat.								
	M79MH								
<b>Cotton County</b>									
<b>Walters</b>	<b>11</b>	<b>0100CST</b> <b>0300CST</b>			<b>0</b>	<b>0</b>	<b>40K</b>		<b>Lightning</b>
<b>Lincoln County</b>									
<b>4 W Prague</b>	<b>11</b>	<b>0430CST</b> <b>0445CST</b>			<b>0</b>	<b>0</b>	<b>12K</b>		<b>Thunderstorm Wind</b>

Isolated thunderstorms developed over central and southwest Oklahoma the morning of the 11th. One thunderstorm was responsible for a lightning strike at the Historic Eagle Park in Walters in Cotton County resulting in a fire that destroyed a skating rink, ghost mine, carousel, and several bumper cars. Also, a severe thunderstorm containing damaging straight line winds 4 miles west of Prague in Lincoln County snapped a tree, destroyed a barn, damaged a trailer home, and blew a camper from a pickup truck over a fence and into some trees.

<b>OKZ031</b>	<b>Seminole</b>								
	<b>11</b>	<b>1100CST</b>			<b>1</b>	<b>0</b>			<b>Excessive Heat</b>
	A 51 year-old woman died in her home in Wewoka due to the excessive heat.								
	F51PH								
<b>Cotton County</b>									
<b>Walters</b>	<b>13</b>	<b>1720CST</b>			<b>0</b>	<b>0</b>	<b>1.5K</b>		<b>Thunderstorm Wind</b>
<b>Tillman County</b>									
<b>Grandfield</b>	<b>13</b>	<b>1730CST</b>			<b>0</b>	<b>0</b>	<b>0.50K</b>		<b>Thunderstorm Wind</b>
<b>Cotton County</b>									
<b>9 E Randlett</b>	<b>13</b>	<b>1740CST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
<b>Cotton County</b>									
<b>Temple</b>	<b>13</b>	<b>1740CST</b>			<b>0</b>	<b>0</b>	<b>0.60K</b>		<b>Thunderstorm Wind</b>
<b>Cotton County</b>									
<b>6 SW Randlett</b>	<b>13</b>	<b>1745CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>

Scattered severe thunderstorms developed over Cotton and Tillman Counties the afternoon of the 13th resulting in power lines being blown down in Grandfield in Tillman County leaving three hundred residents without power for several hours, while in Cotton County, a trampoline blew into some trees in Walters, and several utility poles and large tree limbs were blown down in Temple leaving 200 residents without electricity for several hours.

<b>Dewey County</b>									
<b>Aledo</b>	<b>15</b>	<b>1425CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.75)</b>
<b>Ellis County</b>									
<b>9 SE Harmon</b>	<b>15</b>	<b>1455CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.88)</b>
<b>Ellis County</b>									
<b>3 E Harmon</b>	<b>15</b>	<b>1455CST</b>			<b>0</b>	<b>0</b>			<b>Hail (0.88)</b>



# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

#### Custer County

11 NW Arapaho 15 1500CST 0 0 Hail (0.75)

#### Custer County

5 SW Butler 15 1510CST 0 0 Thunderstorm Wind (G52)

#### Roger Mills County

5 W Angora 15 1520CST 0 0 Hail (1.00)

Scattered severe thunderstorms developed over western Oklahoma the afternoon of the 15th resulting in several occurrences of large hail including dime, nickel and quarter size. There was also one report of severe thunderstorm winds, an Oklahoma Mesonet measurement of 60 mph 5 miles southwest of Butler in Custer County at 1510 CST.

#### OKZ036

##### Jackson

17 1100CST 1 0 Excessive Heat

A 79 year-old man died in his home in Altus due to the excessive heat.

M79PH

#### OKZ019-025-025

##### Logan - Oklahoma

19 1100CST 3 0 Excessive Heat

Three people died on the 19th due to the excessive heat. The first fatality occurred to a man of unknown age. He was found dead in his vehicle in Oklahoma City (Oklahoma County). A 55 year-old woman was found dead in her Guthrie (Logan County) home, and a 78 year-old woman was found dead in her Oklahoma City apartment.

M?VE, F55PH, F78PH

#### OKZ039

##### Stephens

20 1100CST 1 0 Excessive Heat

A 78 year-old woman died in her house in Duncan due to the excessive heat.

F78PH

#### OKZ019

##### Logan

21 1100CST 1 0 Excessive Heat

A 78 year-old woman died in her home in Guthrie due to the excessive heat. Reports indicated she rejected numerous offers of an air conditioner.

F78PH

#### OKZ038

##### Comanche

22 1100CST 0 3 Excessive Heat

Three US Army troop members from Fort Sill were rushed to a local hospital and treated for heat related injuries.

#### Blaine County

4 W Okeene 23 1510CST 0.1 10 0 0 Tornado (F0)

#### Blaine County

Okeene 23 1510CST 0 0 0.50K Thunderstorm Wind

#### Blaine County

Okeene 23 1530CST 0.2 50 0 0 3K Tornado (F0)

#### Blaine County

1.5 N Okeene 23 1530CST 0 0 1K Thunderstorm Wind

#### Major County

18 N Chester 23 1725CST 0 0 Hail (0.75)  
1740CST

An isolated severe thunderstorm in Blaine County was responsible for spawning a short-lived tornado 4 miles west of Okeene at 1510 CST, and was witnessed by a trained spotter on the ground in an open field for less than 1 minute. No damage was reported and thus was rated an F0. Numerous trees were also uprooted in Okeene at 1510 CST. One tree fell across 6th St. blocking traffic

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

until it could be removed by city employees. This damage was associated with damaging straight-line winds. Another F0 tornado was spotted near the hospital in Okeene at 1530 CST. A radio communications tower was destroyed, and one vehicle was damaged in the parking lot due to flying debris. Additional damage was reported 1.5 miles north of Okeene where a large metal shed was destroyed by damaging straight-line winds.

#### Oklahoma County

##### Oklahoma City

<b>24</b>	<b>2005CST</b>	<b>0</b>	<b>0</b>	<b>3K</b>	<b>Lightning</b>
Lightning struck the roof of a house at 1500 NW 48th in Oklahoma City causing it catch on fire. Extent of damage was unknown.					

#### Woodward County

##### 21 NNE Mooreland

<b>25</b>	<b>1600CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G65)</b>
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#### Woods County

##### Lookout

<b>25</b>	<b>1610CST</b>	<b>0</b>	<b>0</b>		<b>Hail (0.75)</b>
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#### Major County

##### 3 E Meno

<b>25</b>	<b>1800CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G60)</b>
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Isolated severe thunderstorms developed over northwest Oklahoma during late afternoon of the 25th resulting in measured wind gusts of 75 mph 21 miles north-northeast of Mooreland in Woodward County and 69 mph 3 miles of east of Meno in Major County, both measured by Oklahoma Mesonet. There was also one report of large hail, dime size at 1610 CST in Lookout in Woods County.

#### Oklahoma County

##### Oklahoma City

<b>26</b>	<b>1300CST</b>	<b>0</b>	<b>0</b>	<b>25K</b>	<b>Thunderstorm Wind</b>
	<b>1310CST</b>				

#### Harper County

##### 7 NW Laverne

<b>26</b>	<b>2130CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G52)</b>
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#### Ellis County

##### 9 NE Catesby

<b>26</b>	<b>2215CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G56)</b>
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Isolated severe thunderstorms developed over central and western Oklahoma during the afternoon and evening of the 26th. In Oklahoma City in Oklahoma County the roof was damaged at Wholesale Carpet Warehouse on N. Ann Arbor and at Payless Cashways at the corner of Reno and MacArthur. Numerous trees and large tree limbs were blown down across the area. Broken windows and roof damage also occurred to a few homes.

#### OKZ025-031

##### Oklahoma - Seminole

<b>27</b>	<b>1100CST</b>	<b>2</b>	<b>0</b>		<b>Excessive Heat</b>
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Two persons died on the 27th due to the excessive heat. The first victim was a 61 year-old man who was found dead in his Oklahoma City (Oklahoma County) home. The other victim was also found dead in his home, this time in Cromwell (Seminole County).

M61PH, M67PH

#### Washita County

##### Burns Flat

<b>27</b>	<b>2015CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G52)</b>
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#### Washita County

##### 1 S Foss

<b>27</b>	<b>2100CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G52)</b>
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#### Ellis County

##### 8 N Shattuck

<b>28</b>	<b>1735CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G61)</b>
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#### Woodward County

##### 20 NE Woodward

<b>28</b>	<b>1855CST</b>	<b>0</b>	<b>0</b>		<b>Thunderstorm Wind (G61)</b>
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#### Woods County

##### 1 W Lookout

<b>28</b>	<b>1915CST</b>	<b>0</b>	<b>0</b>		<b>Hail (0.75)</b>
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# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

#### **Woodward County**

4 SE Woodward 28 2110CST 0 0 Thunderstorm Wind (G52)

#### **OKZ025**

Oklahoma  
30 1100CST 1 0 Excessive Heat

Excessive heat and drought conditions affected western and central Oklahoma from May through early October with the most intense heat and severe drought conditions occurring from mid-June through early September across central and southern Oklahoma. The excessive heat and drought was less severe across northwest and north central Oklahoma. There were 19 fatalities and at least 3 injuries directly related to the heat. Agricultural losses are estimated at nearly 2 billion dollars for the entire state of Oklahoma. Sixty of Oklahoma's 77 counties were declared federal disaster areas.

Heat and drought conditions began in May, intensified in July and August, and diminished in September and early October. Oklahoma City experienced its 6th warmest and 16th driest May on record. Heat and drought conditions escalated after June 11th, which was the last day of widespread rainfall across western and central Oklahoma until early September. The heat and drought then ended in early October when widespread rain and cooler temperatures returned.

The first fatality directly related to the heat occurred on June 21st, when an 81 year-old woman was found dead in her house in Oklahoma City (Oklahoma County). A 76 year-old man was then found dead in his Del City (Oklahoma County) home on June 29th. The heat claimed 15 lives in July. Two persons died on the 9th. A 46 year-old man was found dead in a hotel room in Oklahoma City with no air conditioning. The temperature in the room was 115 degrees. A 73 year-old man was then found dead in his Oklahoma City home. On July 10th, a 79 year-old man was found dead in his mobile home in Mulhall (Logan County). Another heat related fatality occurred on the 11th, when a 51 year-old woman was found dead in her home in Wewoka (Seminole County).

On July 17th, in Altus (Jackson County), a 79 year-old man was found dead in his home, while on the 19th, there were 3 heat related deaths reported. The first fatality occurred to a man of unknown age. He was found dead in his vehicle in Oklahoma City. The second fatality occurred in Guthrie (Logan County) when a 55 year-old man was found dead in his house, while the 3rd fatality occurred to a 78 year-old woman when she was found dead in her Oklahoma City apartment. On July 20th, a 78 year-old woman was found dead in her Duncan (Stephens County) home, while on the 21st, another 78 year-old woman was found dead in her home, this time in Guthrie (Logan County). Two persons died in their homes from the heat on the 27th, the first, a 61 year-old man from Oklahoma City, the second, a 67 year-old man found from Cromwell (Seminole County). The last heat related fatality occurred on the 30th, when a 62 year-old woman was found dead in her Oklahoma City home.

Three heat related fatalities were reported in August. The first occurred on the 2nd when a 53 year-old man was found dead inside his Oklahoma City home. The second heat related fatality occurred on the 3rd, when an 82 year-old man was found dead inside his Oklahoma City home. The last heat related fatality in August occurred on the 5th in Gene Autry (Carter County) when a 76 year-old man was found dead inside his home. Only one heat related fatality was reported in September, and occurred on the 4th. A 76 year-old man was found dead outside of a retirement home in Oklahoma City. He was found after he went for a walk and did not return.

Only 3 heat related injuries were reported during the 5 month-long heat and drought. Three US Army troop members from Fort Sill (Comanche County) were rushed to a local hospital on July 22nd and treated for heat related injuries.

Statistics provided by the Oklahoma State Department of Agriculture indicate economic losses of approximately 2 billion dollars to Oklahoma's agriculture business. Figures were not available for individual counties. Hay and cotton crops were particularly affected. Hay producers harvested only 30 to 80 percent of the normal yield, a loss of perhaps 80 million dollars. Cotton production was reduced by about 70 percent, a loss of 38 million dollars. Other crops such as grain sorghum, peanuts and soybeans also suffered major losses. In total, crop losses across Oklahoma were near 500 million dollars, but because of the multiplying effect on the overall economy, the economic impact is closer to 2 billion dollars.

The summer of 1998 (June-August) was the 4th hottest and 5th driest on record in Oklahoma City. The drought ended gradually in September and early October, but record warm temperatures continued through September. Oklahoma City recorded an average temperature of 81.2 degrees in September, 2nd hottest September on record. The summer of 1980, considered to be the last major period of excessive heat and drought to affect central and western Oklahoma, still ranks as the hottest summer ever for Oklahoma City, however Oklahoma City did experience a drier summer in 1998 than in 1980.

F62PH

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TENNESSEE, Central

#### Lawrence County

Lawrenceburg	13	1715CST			2	20	4M		Flash Flood
	14	1200CST							

Synoptic conditions near the surface and aloft, set the stage for serious flooding problems in Lawrenceburg. A strong cut off low, located west of Lawrenceburg, caused a series of thunderstorms to train or move across Lawrence county. These thunderstorms contained very heavy rains. Precipitable water values were in excess of 2 inches that evening. There was a strong 850 mb moisture convergence field, along with 300 mb divergence, and also Lawrence county was in the right rear quadrant of the jet stream. Nashville Doppler Radar estimated about 8 inches of rain at Lawrenceburg Monday night and early Tuesday morning. 4 inches of rain fell in about an hour at one point Monday night. The Lawrenceburg Filtration Plant received 8.76 inches in a 24 hour period ending 7 AM CDT Tuesday, July 14. The Filtration Plant is a cooperative observer site for Lawrenceburg. Numerous roads were closed due to high water. There were 2 people killed and 20 injured. A 63 year old female was swept away in her car just east of David Crockett State Park on U.S. Highway 64 West bridge. The other fatality, a 74 year old male, was swept away in his car on U.S. Highway 43 bridge near the railroad trestle. The report of the fatalities was received at 1035 PM CDT from the emergency management office. 122 homes were damaged or destroyed, 13 mobile homes and several small bridges were swept away. 100 people had to be evacuated from their homes. 18 businesses sustained water damage. One home had 29 inches of water in it. The water and sewage plant was left inoperable, and residents had no water or bath facilities. Bottled water was distributed. Portable toilets were set up around town. Life was starting to return to normal on Saturday, July 18.

F63VE, M74VE

#### Maury County

Countywide	13	1737CST			0	0			Flash Flood
		2200CST							

Local emergency manager reported numerous roads closed and bridges washed out around the county due to high water.

### TEXAS, North

#### Delta County

Cooper	12	1605CST			0	0			Hail (1.75)
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#### Delta County

Cooper	12	1625CST			0	0	0.50K		Thunderstorm Wind
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A portable sign was blown down onto a road.

#### Hopkins County

Sulphur Spgs	12	1700CST			0	0	20K		Thunderstorm Wind
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Thunderstorm winds unroofed houses and blew down trees and power lines.

#### Rains County

10 SE Emory	12	1800CST			0	0			Hail (1.00)
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#### Ellis County

Bardwell Lake	12	1839CST			0	0			Thunderstorm Wind (G69)
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#### Navarro County

Emhouse	12	1910CST			0	0	2K		Thunderstorm Wind
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Thunderstorm winds blew down trees and caused minor structural damage to buildings.

#### Comanche County

5 N Comanche	13	1558CST			0	0			Hail (0.75)
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#### Comanche County

De Leon	14	1344CST			0	0			Thunderstorm Wind (G52)
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#### Bell County

Pendleton	14	1645CST			0	0	15K		Thunderstorm Wind
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Two barns were blown down from thunderstorm winds.

#### Bell County

Troy	14	1702CST			0	0	1K		Thunderstorm Wind
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Thunderstorm winds blew down a tree.

#### Hamilton County

5 W Hamilton	16	1412CST			0	0			Thunderstorm Wind (G52)
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#### Tarrant County

Ft Worth	16	1415CST			0	0	10K		Thunderstorm Wind
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A food preparation warehouse had windows blown in and an exhaust stack blown off the roof.

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## ADDITIONS/CORRECTIONS

### TEXAS, North

#### **Tarrant County**

**North Richland Hills**      **16**      **1430CST**                **0**      **0**      **5K**           **Thunderstorm Wind**  
Thunderstorm winds blew down several power lines.

#### **Tarrant County**

**Blue Mound**      **16**      **1435CST**                **0**      **0**      **5K**           **Thunderstorm Wind**  
Thunderstorm winds peeled off the roof from a building.

#### **Limestone County**

**Groesbeck**      **16**      **1718CST**                **0**      **0**                **Thunderstorm Wind (G52)**

#### **Limestone County**

**Thornton**      **16**      **1718CST**                **0**      **0**      **2K**           **Thunderstorm Wind**  
Power poles were blown down by thunderstorm winds.

#### **Bosque County**

**Meridian**      **17**      **1300CST**                **0**      **0**      **0.50K**           **Thunderstorm Wind**  
Large tree limbs were blown down by thunderstorm winds.

#### **Mclennan County**

**Lorena**      **17**      **1400CST**                **0**      **0**                **Hail (0.75)**

#### **Hamilton County**

**Hamilton**      **17**      **1415CST**                **0**      **0**      **15K**           **Thunderstorm Wind**  
An apartment building was unroofed and powerlines were blown down from thunderstorm winds.

#### **Mclennan County**

**Woodway**      **17**      **1425CST**                **0**      **0**      **25K**           **Lightning**  
A house was struck by lightning.

#### **Bell County**

**Killeen**      **17**      **1515CST**                **0**      **0**      **2K**           **Thunderstorm Wind**  
Powerlines were blown down from thunderstorm winds.

#### **Kaufman County**

**Kaufman**      **17**      **1515CST**                **0**      **0**      **0.50K**           **Thunderstorm Wind**  
Thunderstorm winds blew down large tree limbs.

#### **Collin County**

**1 N Royse City**      **17**      **1547CST**                **0**      **0**      **1K**           **Thunderstorm Wind**  
Several trees were blown down.

#### **Van Zandt County**

**Edgewood**      **17**      **1556CST**                **0**      **0**      **10K**           **Thunderstorm Wind**  
A house was unroofed by thunderstorm winds.

#### **Anderson County**

**Elkhart**      **17**      **1615CST**                **0**      **0**      **15K**           **Thunderstorm Wind**  
Thunderstorm winds blew trees down onto buildings. Road signs were blown down and a small shed was blown over.

#### **Henderson County**

**Athens**      **17**      **1627CST**                **0**      **0**      **2K**           **Thunderstorm Wind**  
Powerlines were blown down from thunderstorm winds.

#### **Ellis County**

**Waxahachie**      **17**      **1700CST**                **0**      **0**      **5K**           **Thunderstorm Wind**  
A garage was damaged by high thunderstorm winds.

#### **Grayson County**

**Whitesboro**      **17**      **1700CST**                **0**      **0**                **Hail (0.75)**

#### **Coryell County**

**Gatesville**      **18**      **1432CST**                **0**      **0**      **1K**           **Thunderstorm Wind**  
Thunderstorm winds blew down a large tree.

#### **Hamilton County**

**10 W Hamilton**      **16**      **1419CST**                **0**      **0**      **1K**           **Thunderstorm Wind**  
Thunderstorm winds blew down large trees west of Hamilton and in Pottsville.

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## ADDITIONS/CORRECTIONS

### TEXAS, North

#### **McLennan County**

**Mc Gregor**      **16**      **1722CST**      **0**      **0**      **2K**      **Thunderstorm Wind**  
Power poles were blown down by strong thunderstorm winds.

### TEXAS, West

**TXZ045>048-050>052-057>063-067>070-074>075-079>082** - **Gaines - Dawson - Borden - Scurry - Andrews - Martin - Howard - Van Horn/Guadalupe Mountains Area - Reeves County And Upper Trans Pecos - Loving - Winkler - Ector - Midland - Glasscock - Ward - Crane - Upton - Reagan - Davis Mountains - Pecos - Presidio Valley - Marfa Plateau - Big Bend Area - Terrell**

**01**      **0000CST**      **0**      **0**      **Drought**  
**31**      **2359CST**

Drought conditions continued in Southwest Texas and Southeast New Mexico. Agricultural losses will be great but will not be included until the end of the drought or the end of the harvest when totals are calculated. Rains were a little more plentiful in July than in the April through June period, but not nearly enough for the drought conditions to be eased. Some locations in the southwest Mountains received over 3 inches of rain during July, but for most of the area less than an inch fell for the month.

#### **Pecos County**

**2 NW Ft Stockton**      **06**      **1605CST**      **0**      **0**      **70K**      **Thunderstorm Wind (G74)**

A wet microburst hit the northwest side of Fort Stockton with damaging winds and blinding rains. Damage was scattered but locally impressive. The storm was moving from about 190 degrees with its first damage being apparently on the apex of the outflow. A strongly divergent pattern to the damage was noted with winds from 185 degrees on the west end versus 95 degrees on the east end. The damage path was approximately 3/4 mile wide.

The apex of the outflow hit the La Quinta Hotel at the intersection of I-10 and U.S. 285. A large part of the roof was taken off the hotel. The roof was on the second story of the structure and was oriented such that it caught the wind along this apex. The section of roof covered 13 rooms on the second floor and was both a cover for the walkway and roof for the rooms. The roof section broke loose, went over the building and crashed into the parking lot on the other side. The roof section was moving fast enough to force itself under the rear tires of a vehicle and under a storage shed.

To the east, other damage included a storage shed behind a car dealership that was broken loose from tie-down straps. The building was torn apart as it crossed a field with the roof catching in utility lines. A mobile home was rolled off its trailer at a Truck Stop. The main structure on a small lumber yard was destroyed by the winds as it took the corrugated metal roof off and pushed in an outside wall. Behind the lumber yard, much of a roof of storage building was torn off and trees were downed.

The last damage on the extreme east side of the path was part of a convenience store roof that broke loose and struck the convenience store next door. The second store suffered large dents in its metal wall.

A survey of the damage site was performed and an estimate of 85 mph winds was estimated at the La Quinta with 65 mph winds on the extreme east side of the damage.

#### **Dawson County**

**6 NW Lamesa**      **12**      **1515CST**      **0**      **0**      **80K**      **Hail (1.25)**  
A hailstorm hit a cotton field and destroyed over 300 acres of the crop.

#### **Dawson County**

**6 NW Lamesa**      **12**      **1520CST**      **0**      **0**      **10K**      **Thunderstorm Wind**  
The same storm that hailed on the cotton took the roof off a barn and knocked down 6 utility poles.

#### **Scurry County**

**3 NW Snyder**      **12**      **1700CST**      **0**      **0**      **10K**      **Thunderstorm Wind**  
Winds from a downbursting thunderstorm took a large metal roof off a barn and also ripped the roof off a mobile home.

#### **Culberson County**

**5 NW Pine Spgs**      **13**      **1430MST**      **0**      **0**      **Hail (0.75)**  
A multicell storm developed in the Guadalupe Mountains and caused dime size hail in the vicinity of "The Bowl". Fire fighters attempting to complete a controlled burn were pelted by the hail.

#### **Pecos County**

**11 W Ft Stockton**      **13**      **2211CST**      **0**      **0**      **10K**      **Thunderstorm Wind**  
**2225CST**

Colliding outflow boundaries initiated explosive multicellular thunderstorm development near the intersection of U.S. Highway 285 and FM 1776. The storms moved to the south-southwest near the Firestone Test Track where 5 utility poles were knocked

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TEXAS, West

down. When the storm reached I-10, 15 highway signs were blown down including one large "exit" sign that lost 7 panels.

#### **Pecos County**

34 SW Ft Stockton

**13 2330CST** **0 0 0.50K** **Thunderstorm Wind**  
This same storm moved to the southwest along Highway 67 where a highway sign was blown down 20 miles south of the I-10 interchange.

#### **Andrews County**

Andrews

**16 1530CST** **0 0** **Hail (0.75)**  
A multicell storm produced dime size hail in Andrews.

#### **Andrews County**

Andrews

**16 1530CST** **0 0 1K** **Thunderstorm Wind**  
The storm that dropped the hail in Andrews also caused scattered light wind damage across town.

#### **Brewster County**

17 SW Marathon

**20 1920CST** **0 0 5K** **Thunderstorm Wind (G85)**  
Three utility poles were knocked down by thunderstorm outflow winds. Power company officials estimated the wind to have been near 100 mph since the poles were a higher grade than most utility poles. Power was knocked out to customers over a vast area in parts of Brewster County.

#### **Midland County**

(Maf) Midland Intl

**21 1737CST** **0 0 11K** **Thunderstorm Wind (G51)**  
A downburst from a multicell thunderstorm had a measured gust of 59 mph on the KMAF ASOS. Also, wind damage occurred to a metal storage building on the grounds of the airport and 12 utility poles were knocked down in the vicinity of the airport.

#### **Midland County**

6 SW (Maf) Midland Intl

**21 1750CST** **0 0 10K** **Thunderstorm Wind**  
The storm complex that caused the strong winds at the airport moved slowly to the west and another downburst uprooted gas pumps and the attached canopy at a convenience store.

#### **Ector County**

Goldsmith

**21 1835CST** **0 0 3K** **Thunderstorm Wind**  
Thunderstorm downburst winds knocked down several utility poles in Goldsmith.

A tropical upper level low pressure center was moving westward near the Sanderson area. Water Vapor imagery showed the low and a large shield of lift and moisture moving into the region. At max heating, the temperature at KMAF was 100 degrees with a dew point of 57 degrees. A modified 12Z sounding indicated 2200 J/kg of CAPE and Precipitable water of 1.53". Low level winds were mostly over 20 kt on the 00Z sounding, but were very weak aloft. The 00Z sounding thermodynamic readings were tainted by thunderstorms at or near the station.

### TEXAS, Western North

TXZ086

Wichita

**03 1100CST** **1 0** **Excessive Heat**  
A 75 year-old man died in his house in Wichita Falls due to the excessive heat.

M75PH

#### **Baylor County**

5 W Seymour

**05 1305CST** **0 0** **Flash Flood**  
Many county roads were closed 5 miles west of Seymour in Baylor County due to high water. A spotter 1 mile northeast of Red Springs reported 5.2 inches of rain at 1100 CST.

#### **Knox County**

Knox City

**12 1945CST** **0 0 0.50K** **Thunderstorm Wind (G52)**  
**2000CST**

#### **Knox County**

Goree

**12 2005CST** **0 0** **Thunderstorm Wind (G65)**

An isolated severe thunderstorm developed over Knox County the evening of the 12th resulting in power lines being blown down

# Storm Data and Unusual Weather Phenomena

July 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### TEXAS, Western North

in Knox City.

<b>Wichita County</b>									
Burkburnett	13	1715CST			0	1	3K		Lightning
<b>Wichita County</b>									
4 NW Wichita Falls	13	1720CST			0	0			Thunderstorm Wind (G69)
<b>Wichita County</b>									
Burkburnett	13	1745CST			0	0			Hail (0.75)
<b>Wichita County</b>									
1.5 N Sheppard Afb	13	1745CST 1750CST			0	0			Hail (1.00)
<b>Wichita County</b>									
Sheppard Afb	13	1750CST			0	0			Hail (1.00)
<b>Wichita County</b>									
5 N Wichita Falls	13	1800CST			0	0			Thunderstorm Wind (G61)
<b>Archer County</b>									
Holliday	13	1810CST			0	0			Hail (1.00)
<b>Clay County</b>									
3 SW Dean	13	1811CST			0	0			Thunderstorm Wind (G61)
<b>Wichita County</b>									
Burkburnett	13	1815CST			0	0	7K		Thunderstorm Wind
<b>Archer County</b>									
8 S Holliday	13	1830CST			0	0			Hail (0.88)
<b>Clay County</b>									
10 W Henrietta	13	1830CST			0	0	0.50K		Thunderstorm Wind
<b>Archer County</b>									
10 SE Megargel	13	1903CST			0	0			Thunderstorm Wind (G52)

Numerous severe thunderstorms developed over western portions of north Texas during the late afternoon and early evening of the 13th. A roof was blown off of 5 bays of a vehicle garage at the Wichita County Precinct in Burkburnett (Wichita County). In addition, two telephone poles were blown down; eight inch tree limbs were blown down, one through the windshield of a car; two, three-foot diameter trees were blown over between the campuses of Hardin Elementary and Burkburnett Junior High School, and sheet metal roofing was blown off of a building on West 3rd St. One man was injured at a local gas station when he was standing near a utility pole as it was struck by lightning. Paramedics checked him out at the scene and released him. A house was also struck by lightning and caught on fire. The fire department quickly extinguished the fire resulting in only minimal damage. Lastly, power lines were downed 10 west of Henrietta in Clay County.

### TXZ086

#### Wichita

14	1100CST				1	0			Excessive Heat
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Excessive heat and drought conditions affected western portions of north Texas from May through early October with the most intense heat and severe drought conditions occurring from mid-June through early September. There were 2 fatalities and at least 2 injuries directly related to the heat. Agricultural losses are estimated at 2.1 billion dollars for the entire state of Texas. All of Texas's counties were declared federal disaster areas.

Heat and drought conditions began in May, intensified in July and August, and diminished in September and early October. Wichita Falls experienced its 3rd warmest and 3rd driest May on record. Heat and drought conditions escalated after June 11th, which was the last day of widespread rainfall across western portions of north Texas until early September. The heat and drought then ended in early October when widespread rain and cooler temperatures returned.

The first fatality directly related to the heat occurred on July 3rd, when a 75 year-old man was found dead in his home in Wichita Falls (Wichita County). The second and last report of a heat related fatality occurred on July 14th, when a 74 year-old man was found dead in his home, also in Wichita Falls.



## Storm Data and Unusual Weather Phenomena

Location	Date	Time	Path	Path	Number of		Estimated		Character of Storm
		Local/ Standard	Length (Miles)	Width (Yards)	Killed	Injured	Property	Damage Crops	

July 1998

### ADDITIONS/CORRECTIONS

#### TEXAS, Western North

Only 2 heat related injuries were reported during the 5 month-long heat and drought. Two persons from Wichita Falls were treated for heat related injuries on June 2nd at United Regional Health Care. Agricultural losses across Texas totaled about 2.1 billion dollars with no specific statistics available on a county-by-county basis, however cotton losses are expected to contribute significantly to the total loss.

The summer of 1998 (June-August) was the 2nd hottest and 7th driest on record in Wichita Falls. The drought ended gradually in September and early October, but record warm temperatures continued through September. Wichita Falls recorded an average temperature of 83.4 degrees in September, 2nd hottest September on record. The summer of 1980, considered to be the last major period of excessive heat and drought to affect western portions of north Texas, still ranks as the hottest summer ever for Wichita Falls.

F74PH

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### DELAWARE

#### **Kent County**

<b>Smyrna to Hartly</b>	<b>10</b>	<b>1530EST</b>			<b>0</b>	<b>0</b>		<b>0</b>	<b>Lightning</b>
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Lightning struck two homes in Smyrna and Hartly and caused minor damage to both homes.

#### **Kent County**

<b>Northwest Portion</b>	<b>10</b>	<b>1630EST 1930EST</b>			<b>0</b>	<b>0</b>			<b>Flash Flood</b>
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Slow moving thunderstorms brought torrential downpours and flash flooding of streams in the northern half of Kent County and affected the northwestern part of the county the hardest. Doppler Radar storm total estimates reached 11.4 inches between Kenton and Hartly. This appears in line with rainfall reports received around this maximum. Streams flooded in Cheswold and threatened, but did not reach several homes. A small foot bridge was feared to be undermined or washed away, but was not damaged. Firefighters had to pump water from a few basements in Smyrna. Stream flooding forced the closure of several roads in the county, but no washouts or damage occurred. There was a foot of water on U.S. Route 13 near Smyrna. Storm totals included 8.80 inches at 2.5 miles west of Cheswold, 7.93 inches in Smyrna, 3.44 inches in Dover, 2.83 inches at the Dover Air Force Base and 2.34 inches in Greenwood (Sussex County).

#### **Sussex County**

<b>.5 E Rehoboth Beach</b>	<b>13</b>	<b>1145EST 1200EST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Waterspout</b>
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#### **Sussex County**

<b>1.5 E Dewey Beach to .1 E Dewey Beach</b>	<b>13</b>	<b>1220EST 1233EST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Waterspout</b>
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#### **Sussex County**

<b>Dewey Beach</b>	<b>13</b>	<b>1233EST</b>	<b>0.1</b>	<b>100</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>Tornado (F0)</b>
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A couple of waterspouts formed over the Atlantic Ocean just east of Rehoboth and Dewey Beaches. One briefly came ashore as a weak tornado in Dewey Beach. The first waterspout formed in the ocean near Hickman Street in Rehoboth Beach at about 1245 p.m. EDT. The beach was cleared for 15 minutes until the waterspout lifted and the funnel cloud headed south toward Dewey Beach. The waterspout was then sighted a mile and a half east of Dickinson Street in Dewey Beach at 120 p.m. EDT. The lifeguards cleared the beach. It dissipated and then reformed about 500 feet offshore. A third waterspout formed near the shore and came inland as a tornado and tossed sand and beach umbrellas around. The tornado dissipated when it reached Dickinson Street. The weak tornado's (F0 on the Fujita Scale) path length is estimated at 0.1 miles and path width is estimated at 100 yards.

#### **New Castle County**

<b>Newark</b>	<b>18</b>	<b>1445EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
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#### **New Castle County**

<b>New Castle</b>	<b>18</b>	<b>1450EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
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A severe thunderstorm knocked down a couple of trees in Newark and a few trees in New Castle.

#### **New Castle County**

<b>1 E Townsend</b>	<b>18</b>	<b>1620EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
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A severe thunderstorm knocked over a few trees in Appoquinimink Hundred.

#### **Kent County**

<b>Viola</b>	<b>18</b>	<b>1650EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
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Large tree limbs were pulled down by a severe thunderstorm in and around Viola.

#### **Sussex County**

<b>Rehoboth Beach</b>	<b>18</b>	<b>1900EST</b>			<b>0</b>	<b>0</b>	<b>175K</b>	<b>0</b>	<b>Lightning</b>
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Lightning struck a house in Rehoboth Beach and the ensuing fire badly damaged the house's second floor and attic. No injuries were reported, but damage to the two top floors was estimated at \$175,000.

#### **DEZ001>003**

#### **New Castle - Kent - Inland Sussex**

<b>22</b>	<b>1000EST</b>			<b>0</b>	<b>0</b>				<b>Heat Wave</b>
<b>26</b>	<b>1700EST</b>								

A high pressure system that settled over the eastern part of the United States on the 20th and 21st prevented a weak backdoor cold front from reaching the Delmarva Peninsula on the 22nd. This started a heat wave that lasted up to five days across the peninsula through the 26th. The heat wave started to abate on the 25th and ended throughout the state on the 26th as cloudiness associated with Hurricane Bonnie and an approaching weak cold front prevented temperatures from reaching into the 90s. The hottest day for most areas was the 25th and included high temperatures of 96 degrees in Bridgeville and Georgetown (both Sussex County), 95 degrees in Prices Corner (New Castle County) and 91 degrees in Wilmington (New Castle County). No heat related injuries or

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### DELAWARE

fatalities were reported, but the combination of the high temperatures and low rainfall continued to stress agricultural interests in the state.

#### Sussex County

##### Lewes

23	0800EST	1	0	0	0	Rip Currents
29	1800EST					

Rip currents and large waves associated with Hurricane Bonnie killed one swimmer at Rehoboth Beach and resulted in swimming restrictions up and down the Delaware Coast through the full week of August 23rd. Bonnie made her closest pass to Delaware (at tropical storm force strength) during the afternoon of the 28th when she passed about 130 miles east of Indian River Inlet. Larger waves and rip currents started on the 23rd. One rogue wave caught four unsuspecting swimmers in a rip tide about 430 p.m. EDT at Rehoboth Beach. Lifeguards saved three swimmers, but the fourth one, a 24-year-old male drowned. His body was found one hour later. It was the first drowning in front of lifeguards at Rehoboth Beach since 1941. The next day, ten additional swimmers were rescued. A wind surfer was rescued the night of the 25th. As the week wore on, bathing restrictions increased. On the 26th the beach at Fenwick Island was closed. The United States Coast Guard that day also issued a warning for boaters and personal watercraft users to stay out of the ocean. By the 28th (the closest pass by Bonnie) beaches were also closed at Cape Henlopen State Park.

Some minor beach erosion occurred because of Bonnie, but coastal Delaware received only fringe effects from the tropical system on the 28th. The strongest wind gusts were mainly between 30 and 40 mph. The highest wind gust at the Delaware Bay Buoy was 46 mph. Rainfall amounts in Sussex County were generally around one inch. Greenwood had one of the higher storm totals at 1.77 inches. Tidal departures were only between 1.0 and 1.5 feet above normal and were below the thresholds for even minor tidal flooding. The most lasting effects of Bonnie were the rough surf, larger waves and rip currents. According to researchers on the subject of rip currents, rip currents and the sandbars that cause them are always present. Rip currents also form near rock piles, jetties and fishing piers. The theory states conditions get exacerbated (and the rip currents become stronger) when larger than average waves combine with stronger than normal onshore winds. The steady winds pile the water onto the beach longer than usual, building or enlarging the offshore sandbars. Eventually the excess water cuts a channel in the sandbar and/or moves quickly through a pre-existing one and races back to sea through this break. The northeasters of the previous winter were believed to have created a larger than usual number of offshore sandbars. M24IW

#### DEZ001>004

#### New Castle - Kent - Inland Sussex - Delaware Beaches

31	2359EST	0	0	0	Unseasonably Dry
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Unseasonably dry weather continued to take its toll on crops across the Delmarva Peninsula during the month of August. On a county weighted monthly average, all the counties in Delaware had below normal rainfall with the greatest deficiencies (70 percent of normal) in Sussex County. The largest crop losses across the state are expected to occur in Sussex County. The lack of rain was stressing trees throughout the state with premature browning of leaves occurring.

### MARYLAND, Northeast

#### Talbot County

##### Wye Mills

10	1650EST	0	0	0	Lightning
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Lightning associated with a line of thunderstorms caused scattered power outages throughout the Maryland Eastern Shore. In Wye Mills, downed wires closed U.S. Route 50. Power outages were reported in Centreville (Queen Anne's County), Hillsboro (Talbot County), North East (Cecil County), Port Deposit (Cecil County), Rising Sun (Cecil County) and Rock Hall (Kent County).

#### Queen Anne'S County

##### East Portion

10	1700EST 1900EST	0	0	Flash Flood
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Slow moving thunderstorms brought torrential downpours and flash flooding of streams in the eastern part of Queen Anne's County. Doppler Radar storm total estimates reached 8 inches just to the west of Sudlersville and appears in line with rainfall reports received around this maximum. Stream flooding forced the closure of several roads in the county, but no washouts or damage was reported. Storm totals included 5.10 inches in Sudlersville and 2.50 inches in Church Hill. In Delaware, nearly 9 inches of rain (8.80) fell 2.5 miles west of Cheswold.

#### Cecil County

##### Fair Hill

18	1400EST	0	0	0	Thunderstorm Wind (G50)
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A severe thunderstorm knocked down several trees in Fair Hill. The same thunderstorm produced power outages in Elkton. The severe thunderstorm struck around the same location in Fair Hill that experienced a tornado on May 25, 1997. One person who suffered wind damage during that tornado lost an additional four trees during this severe thunderstorm.

#### MDZ008-012-015-019>020

#### Cecil - Kent - Queen Annes - Talbot - Caroline

22	1000EST	0	0	Heat Wave
26	1700EST			

A high pressure system that settled over the eastern part of the United States on the 20th and 21st prevented a weak backdoor cold

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### MARYLAND, Northeast

front from reaching the Delmarva Peninsula on the 22nd. This started a five day heat wave across the peninsula that lasted through the 26th. The heat wave ended as cloudiness associated with Hurricane Bonnie and an approaching weak cold front prevented temperatures from reaching into the 90s. The hottest day for most areas was the 25th and included high temperatures of 98 degrees in Salisbury and 96 degrees at the Baltimore-Washington International Airport and Bridgeville (Delaware). While no heat related injuries or fatalities were reported, the combination of the high temperatures and no rainfall continued to stress the corn and soybean crops across the region.

**MDZ008-012-015-019>020**

**Cecil - Kent - Queen Annes - Talbot - Caroline**

**31 2359EST 0 0 0 Unseasonably Dry**

Unseasonably dry weather continued to take its toll on crops across the Delmarva Peninsula during the month of August. On a county weighted monthly average, Cecil, Kent and Queen Anne's Counties received only about 60 percent of the normal rainfall with the driest conditions (around half of normal rainfall) in Kent County. Monthly rainfall totals in Caroline and Talbot Counties averaged around 1.5 inches above normal aided by the locally heavy rain on the 10th and precipitation from Bonnie on the 28th. In spite of this, the largest crop losses across the Maryland Eastern Shore are expected to occur in Caroline and Talbot Counties. Talbot County is expected to lose between 30 and 40 percent of the planted corn crops and between 10 and 20 percent of the soybean crop. Elsewhere across the Eastern Shore corn crop losses are expected to be as high as 30 percent and soybean crop losses up to 10 percent.

### MONTANA, Central

#### **Cascade County**

**Vaughn 07 1530MST 0 0 Hail (1.75)**  
BROKE WINDOWS AND DESTROYED CROPS

#### **Teton County**

**Dutton 07 1545MST 0 0 Hail (1.75)**

#### **Judith Basin County**

**15 SSE Hobson 14 1625MST 0.5 10 0 0 Tornado (F0)**

#### **Judith Basin County**

**Stanford 14 1640MST 0 0 Thunderstorm Wind (G50)**

#### **Gallatin County**

**Manhattan 16 1410MST 0 0 Hail (0.75)**

#### **Cascade County**

**10 S Great Falls 20 1648MST 0 0 Thunderstorm Wind (G52)**

#### **Cascade County**

**13 S Ulm 20 1830MST 0 0 Hail (0.75)**

#### **Cascade County**

**Great Falls 20 2010MST 0 0 Hail (0.75)**

#### **Pondera County**

**10 E Conrad 21 1630MST 0 0 Hail (1.75)**

#### **Fergus County**

**5 NW Moore to 1 W Moore 23 1500MST 4 10 0 0 Tornado (F0)**  
1630MST

#### **Fergus County**

**3 N Moore to 1 W Moore 23 1530MST 3.5 10 0 0 35K Tornado (F1)**  
1630MST

#### **Cascade County**

**10 NE Cascade 23 1550MST 0 0 Thunderstorm Wind (G50)**

#### **Fergus County**

**15 N Denton 23 1600MST 0 0 Hail (1.00)**

#### **Judith Basin County**

**2 NW Windham 23 1620MST 0 0 Hail (0.75)**

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### MONTANA, Central

#### **Fergus County**

**1 W Moore**      **23**      **1635MST**      **0.3**      **7**      **0**      **0**      **4K**      **Tornado (F0)**  
**1637MST**

#### **Judith Basin County**

**1 N Hobson**      **23**      **1645MST**                **0**      **0**           **Thunderstorm Wind (G60)**

### NEW JERSEY, South and Northwest

#### **Morris County**

**Morristown**      **05**      **0800EST**                **0**      **0**      **0**      **Wild/Forest Fire**  
**1500EST**

The unseasonably warm and dry weather contributed to a three-quarter acre grass and forest fire near Jockey Hollow in Morristown. The fire was quickly contained and there were no reports of injuries or property damage.

#### **Ocean County**

**Brant Beach**      **16**      **0700EST**                **1**      **0**      **0**      **0**      **Rip Currents**

A 45-year-old male drowned the morning of August 16th when he was unable to swim back to shore. The man was swimming with his 13-year-old son at about 8 a.m. EDT before lifeguards were on duty. The two were reportedly pulled far from the shore by an ocean current. The father struggled when he tried to swim back to shore, so the son swam to the beach alone to get help. The body was found two days later by a fishing boat three miles off Long Beach Island. M45IW

#### **Morris County**

**Countywide**      **17**      **0900EST**                **0**      **0**           **Urban/Sml Stream Fld**  
**1500EST**

#### **Middlesex County**

**Countywide**      **17**      **1100EST**                **0**      **0**           **Urban/Sml Stream Fld**  
**1700EST**

#### **Monmouth County**

**Countywide**      **17**      **1100EST**                **0**      **0**           **Urban/Sml Stream Fld**  
**1700EST**

A weak low pressure system developed along an old nearly stationary frontal boundary the morning of the 17th over the Delmarva Peninsula. It moved northeast and passed near New York City the evening of the 17th. The low produced heavy rain during the afternoon of the 17th across sections of Middlesex, Monmouth and Morris Counties. The recent dry weather prevented any major streams or rivers from flooding, but some urban and poor drainage flooding was reported in Edison, Freehold and Neptune. Storm totals included 3.00 inches in Edison (Middlesex County), 2.87 inches in Long Valley (Morris County) and 2.80 inches in Iselin (Middlesex County).

#### **Salem County**

**Countywide**      **18**      **1450EST**                **0**      **0**           **Thunderstorm Wind (G50)**  
**1520EST**

A severe thunderstorm produced scattered pockets of wind damage throughout the county. The wind damage was mainly confined to lines and large tree limbs.

#### **Cape May County**

**North Cape May**      **18**      **1742EST**                **0**      **0**           **Thunderstorm Wind (G52)**

A severe thunderstorm affected extreme southern Cape May County. The Cape May Ferry Terminal personnel described the wind as "hammering". A wind gust to 52 knots (60 mph) was reported by one of the ferry ships.

**NJZ009>010-012>013-015>022**      **Hunterdon - Somerset - Middlesex - Western Monmouth - Mercer - Salem - Gloucester - Camden - Burlington - Western Ocean - Cumberland - Western Atlantic**

**22**      **1000EST**      **0**      **0**      **Heat Wave**  
**26**      **1700EST**

A high pressure system that settled over the eastern part of the United States on the 20th and 21st prevented a weak backdoor cold front from completely going through New Jersey. This started a heat wave on the 22nd in the southwest part of the state that spread to the central part of the state by the 24th. The heat wave lasted up to 5 days. It started to abate on the 25th and ended on the 26th as the combination of cloudiness from a weak cold front and Hurricane Bonnie prevented temperatures from reaching the 90s. The hottest day for most areas was either the 24th or 25th. Highest temperatures included 96 degrees in Estell Manor (Atlantic County) and the Atlantic City International Airport, 95 degrees in New Lisbon (Burlington County) and East Toms River (Ocean County), 94 degrees in Belle Mead (Somerset County), Millville (Cumberland County), Pennsauken (Camden County) and Red Bank (Monmouth County), 93 degrees in Freehold (Monmouth County), New Brunswick (Middlesex County) and Somerdale (Camden County), 92 degrees in Piney Hollow (Gloucester County), Wertsville (Hunterdon County), Seabrook (Cumberland

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### NEW JERSEY, South and Northwest

County) and Trenton (Mercer County). No heat related injuries or fatalities were reported but the combination of the high temperatures and low rainfall continued to stress the crops in farming areas.

#### Atlantic County

<b>Brigantine to</b>	<b>23</b>	<b>0800EST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Rip Currents</b>
<b>Longport</b>	<b>29</b>	<b>1800EST</b>							

#### Cape May County

<b>Ocean City to</b>	<b>23</b>	<b>0800EST</b>			<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>Rip Currents</b>
<b>Cape May Pt</b>	<b>29</b>	<b>1800EST</b>							

#### Monmouth County

<b>Highland Beach to</b>	<b>23</b>	<b>0800EST</b>			<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>Rip Currents</b>
<b>Manasquan</b>	<b>29</b>	<b>1800EST</b>							

#### Ocean County

<b>3 N Bay Head to</b>	<b>23</b>	<b>0800EST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Rip Currents</b>
<b>3 SW Beach Haven</b>	<b>29</b>	<b>1800EST</b>							
<b>Hgts</b>									

Rip currents and large waves associated with Hurricane Bonnie caused hundreds of water rescues, at least eight injuries and resulted in swimming restrictions up and down the New Jersey Coast through the full week of August 23rd. Bonnie made her closest pass to New Jersey (at tropical storm force strength) during the afternoon of the 28th when she passed about 140 miles east of Atlantic City.

Larger waves and rip currents started on the 23rd. That day alone the Atlantic City Beach Patrol rescued about 75 swimmers. There were nearly one hundred water rescues that day at the beaches in Cape May, North Wildwood (a 10-year-old boy was pulled out 100 feet) and Wildwood. In Cape May, the pounding surf caused five injuries that included separated shoulders, neck injuries and broken noses. In Monmouth County, 10 swimmers were rescued late in the day at Bradley Beach. On the 24th, swimming restrictions started as swells increased to six to eight feet. Boogie boards and inflatable rafts were banned. Swimmers were generally restricted to waist high water. Margate (Atlantic County) ordered sailboats to be cleared from beach areas. The most reported rescues on the 24th were in Monmouth County (about 25) in Manasquan and Spring Lake. One teenager in Spring Lake was injured. On the 25th a few beaches were closed, especially at high tide. The surf became so rough that even five lifeguards were rescued in Point Pleasant (Ocean County) and Atlantic City. Two juveniles suffered neck injuries in Ocean City (Cape May County). Strong winds also sent beach umbrellas flying. Rough swells in Barnegat Inlet capsized one boat and knocked several people off their jet skis. Seven people were rescued. As Bonnie neared the North Carolina Coast on the 26th, beach restrictions became tighter. Numerous beaches were closed and surfing was banned in several communities. Some beaches permitted bathers to only go into the water up to their ankles. The United States Coast Guard issued a warning for boaters and personal watercraft users to stay off the ocean. The surfing and bathing bands peaked on the 27th and 28th as Bonnie made her closest approach to New Jersey.

Some minor beach erosion occurred because of Bonnie, but coastal New Jersey received only fringe effects from the tropical system on the 28th. The strongest wind gusts were mainly around 35 mph. The highest wind gust at the Delaware Bay Buoy was 46 mph. Rainfall amounts were under an inch. Tidal departures were only between 1.0 and 1.5 feet above normal and were below the thresholds for even minor tidal flooding. The most lasting effects of Bonnie were the rough surf, larger waves and rip currents. According to researchers on the subject of rip currents, rip currents and the sandbars that cause them are always present. Rip currents also form near rock piles, jetties and fishing piers. The theory states conditions get exacerbated (and the rip currents become stronger) when larger than average waves combine with stronger than normal onshore winds. The steady winds pile the water onto the beach longer than usual, building or enlarging the offshore sandbars. The excess water then cuts a channel and/or moves quickly through a pre-existing one in the sandbar and races back to sea through this break. The northeasters of the previous winter were believed to have created a larger than normal number of offshore sandbars.

#### Warren County

<b>Central Portion</b>	<b>25</b>	<b>2225EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
		<b>2230EST</b>							

A severe thunderstorm knocked down trees and caused sporadic power outages in Belvidere and Oxford Townships.

#### Sussex County

<b>Countywide</b>	<b>25</b>	<b>2306EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
		<b>2331EST</b>							

A series of severe thunderstorms knocked down numerous trees throughout Sussex County.

#### Mercer County

<b>South Portion</b>	<b>26</b>	<b>1900EST</b>			<b>0</b>	<b>0</b>			<b>Flash Flood</b>
		<b>2300EST</b>							

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### NEW JERSEY, South and Northwest

#### Middlesex County

Southwest Portion      26      1930EST  
2300EST      0      0      Flash Flood

The warm and humid tropical air mass that was in place over the region preceding Hurricane Bonnie combined with a dissipating cold front to produce thunderstorms with torrential downpours in central New Jersey. This caused flash flooding of some of the streams and creeks across the southern half of Mercer County and the extreme southwest portion of Middlesex County. This included Bear Creek. Urban and poor drainage flooding also occurred. In Trenton, police had to barricade several major roads. Several roads were also closed in Ewing Township. In Hamilton Township three roads were closed and the heavy rain caused the collapse of a 60 foot by 60 foot section of a vacant warehouse's roof. Storm totals included 4.08 inches in Hightstown. Doppler radar storm totals estimates (they appeared in line with the Hightstown report) reached 5.3 inches.

NJZ001-007>010-  
012>026

**Sussex - Warren - Morris - Hunterdon - Somerset - Middlesex - Western Monmouth - Eastern Monmouth - Mercer - Salem - Gloucester - Camden - Burlington - Western Ocean - Cumberland - Western Atlantic - Western Cape May - Eastern Cape May - Eastern Atlantic - Eastern Ocean**

31      2359EST      0      0      0      Unseasonably Dry

Unseasonably dry weather continued to take its toll on crops and vegetation across New Jersey during the month of August. On a county weighted monthly average only 43 percent to 87 percent of normal precipitation occurred with the greatest deficiencies (less than half of normal) in Burlington, Camden and Gloucester Counties. Only Warren and Sussex Counties had monthly deficits of less than one inch. Grain and field crops were the most adversely affected agricultural crops. Farmers in central New Jersey who are more rainfall dependent were also hit the hardest. The dry conditions also led to the New Jersey Forest Fire Service to ban ground fires even on private land in many areas in northern New Jersey north of the Raritan River. The dry weather also led to the imposition of water restrictions in Mount Olive Township in Morris County. At the Atlantic City International Airport, the August precipitation total of 1.80 inches was 2.34 inches below normal. At nearby Philadelphia International Airport, the August precipitation total of 1.26 inches was 2.54 inches below normal. At nearby the Lehigh Valley International Airport, the August precipitation total of 3.13 inches was 1.15 inches below normal.

### NEW YORK, North

#### Clinton County

Rouses Pt      11      1840EST  
1850EST      0      0      50K      Thunderstorm Wind (G60)

A cold front moved across northern New York during the afternoon and night of August 11th. Thunderstorms developed along and ahead of the front with locally strong winds, torrential rain and small hail. Specifically, in Rouses Point, New York thunderstorm winds were measured at 69 mph (60 knots) at the marina with structural damage to the docks.

#### Essex County

East Portion      11      2000EST  
12      0030EST      0      0      1M      Flash Flood

A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th. With a warm humid airmass in place, thunderstorms resulted in torrential downpours during the night. Small streams and brooks quickly rose out of their banks. Road flooding was especially severe in eastern portions of the county in the towns of Lewis, Ticonderoga, Moriah and Hudson with numerous road washouts.

#### St. Lawrence County

Red Mills      24      1500EST  
1505EST      0      0      30K      Thunderstorm Wind

#### St. Lawrence County

Lisbon      24      1510EST      0      0      30K      Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of New York and Vermont. Thunderstorms developed along and ahead of the front. Specifically, in St Lawrence county, strong winds blew trees and power lines down in Red Mills with windows damaged in structures. In Lisbon, numerous trees and power lines were blown down with some damage to structures.

#### Franklin County

North Bangor      24      1550EST      0      0      1K      Thunderstorm Wind

#### Franklin County

Tupper Lake      24      1620EST      0      0      Hail (1.00)

#### Franklin County

Tupper Lake      24      1620EST      0      0      10K      Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of New York and Vermont. Thunderstorms developed along and ahead of the front. Specifically, in Franklin county,

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### NEW YORK, North

strong winds blew down large tree limbs in North Bangor, while numerous trees and power lines were blown down in Tupper Lake along with 1 inch hail.

#### Clinton County

Merrill

24 1615EST 0 0 5K Thunderstorm Wind

#### Clinton County

Saranac

24 1625EST 0 0 30K Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of New York and Vermont. Thunderstorms developed along and ahead of the front. Specifically, in Clinton county, strong winds blew down 4 large trees in Merrill while trees were blown down in Saranac along with structural damage.

#### Essex County

Schroon Lake

24 1710EST 0 0 30K Thunderstorm Wind  
1720EST

#### Essex County

Ticonderoga

24 1710EST 0 0 200K Thunderstorm Wind  
1720EST

Thunderstorms resulted in winds which caused extensive damage. Numerous trees and power lines were blown down in Ticonderoga and the Schroon Lake area. Damage was reported to a few structures, including damage to a church steeple in Ticonderoga with windows broken and damage to a few houses.

### OKLAHOMA, Western, Central and Southeast

#### OKZ025

##### Oklahoma

02 1100CST 1 0 Excessive Heat

A 53 year-old man died in his Oklahoma City home due to the excessive heat.

M53PH

#### OKZ025

##### Oklahoma

03 1100CST 1 0 Excessive Heat

A 82 year-old woman died in her Oklahoma City home due to the excessive heat.

F82PH

#### Pontotoc County

2 NE Ada

03 2200CST 0 0 Thunderstorm Wind (G53)

#### Payne County

Yale

04 1800CST 0 0 1K Lightning

Lightning struck a telephone line. The electricity then transferred through the line and into a house causing a light fixture to explode.

#### OKZ046

##### Carter

05 1100CST 1 0 Excessive Heat

Excessive heat and drought conditions affected western and central Oklahoma from May through early October with the most intense heat and severe drought conditions occurring from mid-June through early September across central and southern Oklahoma. The excessive heat and drought was less severe across northwest and north central Oklahoma. There were 19 fatalities and at least 3 injuries directly related to the heat. Agricultural losses are estimated at nearly 2 billion dollars for the entire state of Oklahoma. Sixty of Oklahoma's 77 counties were declared federal disaster areas.

Heat and drought conditions began in May, intensified in July and August, and diminished in September and early October. Oklahoma City experienced its 6th warmest and 16th driest May on record. Heat and drought conditions escalated after June 11th, which was the last day of widespread rainfall across western and central Oklahoma until early September. The heat and drought then ended in early October when widespread rain and cooler temperatures returned.

The first fatality directly related to the heat occurred on June 21st, when an 81 year-old woman was found dead in her house in Oklahoma City (Oklahoma County). A 76 year-old man was then found dead in his Del City (Oklahoma County) home on June 29th. The heat claimed 15 lives in July. Two persons died on the 9th. A 46 year-old man was found dead in a hotel room in Oklahoma City with no air conditioning. The temperature in the room was 115 degrees. A 73 year-old man was then found dead in



# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

his Oklahoma City home. On July 10th, a 79 year-old man was found dead in his mobile home in Mulhall (Logan County). Another heat related fatality occurred on the 11th, when a 51 year-old woman was found dead in her home in Wewoka (Seminole County).

On July 17th, in Altus (Jackson County), a 79 year-old man was found dead in his home, while on the 19th, there were 3 heat related deaths reported. The first fatality occurred to a man of unknown age. He was found dead in his vehicle in Oklahoma City. The second fatality occurred in Guthrie (Logan County) when a 55 year-old man was found dead in his house, while the 3rd fatality occurred to a 78 year-old woman when she was found dead in her Oklahoma City apartment. On July 20th, a 78 year-old woman was found dead in her Duncan (Stephens County) home, while on the 21st, another 78 year-old woman was found dead in her home, this time in Guthrie (Logan County). Two persons died in their homes from the heat on the 27th, the first, a 61 year-old man from Oklahoma City, the second, a 67 year-old man found from Cromwell (Seminole County). The last heat related fatality occurred on the 30th, when a 62 year-old woman was found dead in her Oklahoma City home.

Three heat related fatalities were reported in August. The first occurred on the 2nd when a 53 year-old man was found dead inside his Oklahoma City home. The second heat related fatality occurred on the 3rd, when an 82 year-old man was found dead inside his Oklahoma City home. The last heat related fatality in August occurred on the 5th in Gene Autry (Carter County) when a 76 year-old man was found dead inside his home. Only one heat related fatality was reported in September, and occurred on the 4th. A 76 year-old man was found dead outside of a retirement home in Oklahoma City. He was found after he went for a walk and did not return.

Only 3 heat related injuries were reported during the 5 month-long heat and drought. Three US Army troop members from Fort Sill (Comanche County) were rushed to a local hospital on July 22nd and treated for heat related injuries.

Statistics provided by the Oklahoma State Department of Agriculture indicate economic losses of approximately 2 billion dollars to Oklahoma's agriculture business. Figures were not available for individual counties. Hay and cotton crops were particularly affected. Hay producers harvested only 30 to 80 percent of the normal yield, a loss of perhaps 80 million dollars. Cotton production was reduced by about 70 percent, a loss of 38 million dollars. Other crops such as grain sorghum, peanuts and soybeans also suffered major losses. In total, crop losses across Oklahoma were near 500 million dollars, but because of the multiplying effect on the overall economy, the economic impact is closer to 2 billion dollars.

The summer of 1998 (June-August) was the 4th hottest and 5th driest on record in Oklahoma City. The drought ended gradually in September and early October, but record warm temperatures continued through September. Oklahoma City recorded an average temperature of 81.2 degrees in September, 2nd hottest September on record. The summer of 1980, considered to be the last major period of excessive heat and drought to affect central and western Oklahoma, still ranks as the hottest summer ever for Oklahoma City, however Oklahoma City did experience a drier summer in 1998 than in 1980.

M76PH

<b>Grady County</b>								
4 S Alex	07	1730CST			0	0		Hail (0.75)
<b>Atoka County</b>								
Stringtown	08	1720CST			0	0		Hail (1.00)
<b>Garfield County</b>								
Lahoma	09	1807CST			0	0	42K	Thunderstorm Wind
<b>Garfield County</b>								
Breckinridge	09	1825CST			0	0	15K	Thunderstorm Wind
<b>Garfield County</b>								
3 SE Breckinridge	09	1825CST			0	0		Thunderstorm Wind (G58)

An isolated severe thunderstorm developed over Garfield County the evening of the 9th. A roof and 5 classrooms at Cimarron Elementary School were damaged in Lahoma along with two custom storage trailers at Beckham Trailer and Motor Sports Incorporated, and a wooden swingset. Severe thunderstorm winds also damaged an airplane and hangar at Carson Flying Service Incorporated, several power poles, house roofs and storage sheds in Breckinridge. Oklahoma Mesonet also measured a wind gust of 67 mph at 1825 CST 3 miles southeast of Breckinridge.

<b>Caddo County</b>								
Apache	10	1430CST			0	0	0.50K	Thunderstorm Wind

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### OKLAHOMA, Western, Central and Southeast

<b>Greer County</b>									
Granite	10	1430CST	0.3	50	0	0	0.50K		Tornado (F0)
<b>Kiowa County</b>									
Mountain View	10	1430CST			0	0	1K		Lightning
<b>Kiowa County</b>									
Hobart	10	1437CST			0	0	1K		Thunderstorm Wind (G67)
<b>Comanche County</b>									
3 E Sterling	10	1733CST			0	0	10K		Lightning
<b>Seminole County</b>									
Seminole	10	1800CST			0	0	4K		Lightning
<b>Stephens County</b>									
Duncan	10	1800CST 1930CST			0	0	0.50K		Lightning
<b>Woodward County</b>									
13 N Mooreland	10	1810CST			0	0			Hail (1.00)

Scattered severe thunderstorms developed over portions of central and western Oklahoma during the afternoon and evening of the 10th. One small tornado and many occurrences of lightning damage were reported. The tornado, rated an F0, was witnessed by several persons east of Lake Creek Road near Granite in Greer County. The tornado was on the ground for less than one minute as it knocked down a few trees and blew several long feeders a short distance on a farm. Severe thunderstorm winds downed large tree limbs onto some wires in Apache in Caddo County knocking out power to 150 residents for 4 hours, while in Mountain View in Kiowa County, lightning struck a utility pole knocking out power to 300 residents for 3 hours. Also in Kiowa County, near Hobart, a wind gust of 77 mph was observed. Two power poles were also downed on US 183 just south of Oklahoma 9 near the Gotebo fire site. Lightning struck 2 oil tanks 3 miles east of Sterling in Comanche County setting them ablaze. Numerous power outages were also reported leaving many residents without power for several hours. Lightning also struck in Seminole in Seminole County. A television antenna was struck by lightning causing a television and numerous breakers to explode. The coax cable going into the house and the exterior siding were also damaged. Lastly, lightning caused damage in Duncan in Stephens County. Lightning struck a power line on the north side of Duncan knocking power out to 500 residents for 2 hours. Lightning also struck a transformer on the east side of Duncan knocking power out to 78 residents for 1 hour and 20 minutes.

<b>Logan County</b>									
Guthrie	12	1546CST			0	0	1K		Lightning
<b>Seminole County</b>									
Seminole	12	1700CST			0	0	25K		Lightning
<b>Bryan County</b>									
Yuba	12	2000CST			0	0	15K		Lightning

Lightning struck a fuse box in Guthrie in Logan County causing one power outage. Lightning also struck a power pole on the east side of Guthrie near SH 105 causing another power outage. Lightning struck a house about one-quarter of a mile south of SH 9 in Seminole in Seminole County causing a fire that resulted in major structural damage to the house. Lastly, lightning struck the steeple of First Baptist Church in Yuba in Bryan County starting a fire that damaged the foyer.

<b>Beckham County</b>									
4 NW Elk City	19	1430CST			0	0	2.5K		Lightning

Lightning started a 30 acre grass fire that consumed a large fence. Several fire departments battled the blaze for many hours.

### PENNSYLVANIA, East

<b>Berks County</b>									
Robesonia to Shillington	10	1430EST			0	0	0		Lightning

Lightning struck two Pennsylvania Power and Light (PPL) substations in Robesonia and Shillington around 330 p.m. EDT and knocked out several fuses. The substations could not handle the incoming 69,000 volt lines from the company's Lancaster County

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons Killed	Injured	Estimated Damage Property	Crops	Character of Storm
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## ADDITIONS/CORRECTIONS

### PENNSYLVANIA, East

station. Consequently 11,000 customers or about one-third of PPL's western Berks customer base lost power for about two hours. Another lightning strike caused about 160 GPU Energy customers in the Hamburg area to lose power.

#### Montgomery County

##### Pottstown

**10 1700EST 0 0 0 Heavy Rain**

Heavy rain associated with a line of thunderstorms, caused some urban and poor drainage flooding and caused the canopy at the front entrance of an apartment building to collapse in Pottstown. A glass door at the entrance of the apartment building was shattered and several others were cracked. No injuries were reported. College Drive near High Street was barricaded because of flooding along High Street. Storm totals around the area averaged between 1 and 1.75 inches and included 1.59 inches in Honey Brook (Chester County), 1.42 inches in Bechtelsville (Berks County), 1.28 inches in Glenmoore (Chester County) and 1.11 inches in Palm (Montgomery County).

#### Montgomery County

##### Limerick

**10 1900EST 0 0 15K 0 Lightning**

Lightning struck a house in Limerick and the ensuing fire damaged its basement and interior. The damage was estimated at \$15,000. Lightning apparently entered the peak of the roof, traveled along the side and crossed the front of the house along the soffit. It then traveled down the side into the basement where it traveled along a gas pipe and blew the flextube off the pipe that sends the gas to the fireplace. It took firefighters less than 15 minutes to extinguish the blaze.

#### Bucks County

##### Countywide

**17 0900EST 0 0 Urban/Sml Stream Fld**  
**1500EST**

#### Chester County

##### Countywide

**17 0900EST 0 0 Urban/Sml Stream Fld**  
**1500EST**

#### Delaware County

##### Countywide

**17 0900EST 0 0 Urban/Sml Stream Fld**  
**1500EST**

#### Montgomery County

##### Countywide

**17 0900EST 0 0 Urban/Sml Stream Fld**  
**1500EST**

A weak low pressure system developed along an old nearly stationary frontal boundary the morning of the 17th over the Delmarva Peninsula. It moved northeast and passed near New York City the evening of the 17th. The low produced heavy rain during the afternoon of the 17th across sections of the northwestern Philadelphia suburbs. The recent dry weather prevented any major streams or rivers from flooding, but some urban and poor drainage flooding was reported. Storm totals included 3.33 inches in Fricks (Bucks County), 2.54 inches in Perkasio (Bucks County), 2.45 inches in Phoenixville (Chester County) and 1.85 inches in Crum Creek (Delaware County).

#### Berks County

##### Morgantown

**18 1339EST 0 0 0 Thunderstorm Wind (G50)**

A severe thunderstorm knocked down a few trees in Caernarvon Township.

#### Montgomery County

##### East Norriton to Narberth

**18 1500EST 0 0 0 Thunderstorm Wind (G50)**  
**1505EST**

A severe thunderstorm pulled down large tree limbs and wires in the extreme southwest portion of Montgomery County in East Norriton and Lower and Upper Merion Townships.

#### Philadelphia County

##### Bustleton

**18 1530EST 0 0 0 Thunderstorm Wind (G50)**

A severe thunderstorm pulled down about half a dozen wires as well as large tree limbs in the extreme northeast part of Philadelphia.

#### PAZ067>071

#### Chester - Montgomery - Bucks - Delaware - Philadelphia

**22 1000EST 0 0 Heat Wave**  
**26 1700EST**

A high pressure system that settled over the eastern part of the United States on the 20th and 21st prevented a weak backdoor cold front from completely going through Eastern Pennsylvania. This started a heat wave that lasted up to five days. The heat wave abated on the 25th as cloudiness from a weak cold front moved into the area and ended on the 26th as the former combined with cloudiness associated with Hurricane Bonnie. The hottest day for most areas was either the 24th or 25th and included high temperatures of 95 degrees at Crum Creek (Delaware County), 94 degrees at the Franklin Institute within Philadelphia, 93 degrees at Valley Forge (Montgomery/Chester County Line), Neshaminy Falls (Bucks County) and the Philadelphia International Airport ,

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### PENNSYLVANIA, East

92 degrees at Northeast Philadelphia Airport and 90 degrees at the Willow Grove N.A.S. (Montgomery County). No heat related injuries or fatalities were reported but the combination of the high temperatures and low rainfall continued to stress the crops in farming areas.

#### **Northampton County**

<b>Indianland to Chapman</b>	<b>26</b>	<b>0010EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G57)</b>
		<b>0015EST</b>							

#### **Northampton County**

<b>Bethlehem to Easton</b>	<b>26</b>	<b>0030EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G57)</b>
		<b>0040EST</b>							

A pair of severe thunderstorms produced scattered pockets of wind damage in Northampton County. About 1,300 homes and businesses lost power. There were dozens of reports of downed trees and large limbs that blocked roads and damaged parked cars. The first thunderstorm went across the northern half of the county and downed trees and power lines in Lehigh and Moore and Townships. In Lehigh Township, numerous trees were knocked down along Pennsylvania State Route 248 in Indianland. The second thunderstorm went across the southern half of the county through Bethlehem, Palmer Township and Easton. In Bethlehem, wind damage included a tossed metal storage shed and a downed tree blocked a Conrail Railroad track.

#### **Berks County**

<b>Birdsboro</b>	<b>26</b>	<b>0010EST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G50)</b>
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A severe thunderstorm knocked down several trees in Birdsboro and Union Township. In Union Township, downed trees severely damaged one home (living room destroyed) and caused minor damage to four other homes. An uprooted tree took down phone lines and knocked out service to 10 homes. In Birdsboro, downed trees caused what was described as aesthetic damage to homes in a four block area.

**PAZ054>055-060>062-067>071 Carbon - Monroe - Berks - Lehigh - Northampton - Chester - Montgomery - Bucks - Delaware - Philadelphia**

<b>31</b>	<b>2359EST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>Unseasonably Dry</b>
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Unseasonably dry weather continued to take its toll on crops and vegetation across Eastern Pennsylvania during the month of August. On a county weighted monthly average only Berks and Delaware Counties had near normal precipitation during the month. The remaining counties received between 50 percent and 83 percent of normal precipitation with the greatest deficiencies in Monroe and Philadelphia Counties. In spite of normal August precipitation, up to half of the crops growing in Berks County could be lost. The dry weather also led to several minor brush fires in Chester County. At Philadelphia International Airport, the August precipitation total of 1.26 inches was 2.54 inches below normal. At the Lehigh Valley International Airport, the August precipitation total of 3.13 inches was 1.15 inches below normal.

### TEXAS, North

#### **Van Zandt County**

<b>5 W Canton</b>	<b>03</b>	<b>1730CST</b>			<b>0</b>	<b>0</b>	<b>1K</b>	<b>Thunderstorm Wind</b>
Large trees were blown down by high winds.								

#### **Leon County**

<b>Centerville</b>	<b>04</b>	<b>1711CST</b>			<b>0</b>	<b>0</b>	<b>0</b>	<b>Thunderstorm Wind</b>
A tree was blown down onto U.S Highway 75 in town.								

#### **Lamar County**

<b>Paris</b>	<b>10</b>	<b>1345CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>	<b>Thunderstorm Wind</b>
Sheet metal panels were blown off a roof by high winds.								

#### **Van Zandt County**

<b>Phalba</b>	<b>11</b>	<b>1440CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>	<b>Thunderstorm Wind</b>
Trees and power lines were blown down by high winds.								

#### **Tarrant County**

<b>Haltom City</b>	<b>11</b>	<b>1515CST</b>			<b>0</b>	<b>0</b>	<b>3K</b>	<b>Thunderstorm Wind</b>
Trees were blown down onto a car and a house.								

#### **Van Zandt County**

<b>Martins Mills</b>	<b>11</b>	<b>1515CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>	<b>Thunderstorm Wind</b>
Trees and power lines were blown down by high winds.								

#### **Van Zandt County**

<b>Edom</b>	<b>11</b>	<b>1604CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>	<b>Thunderstorm Wind</b>
Power lines were blown down by high winds.								

# Storm Data and Unusual Weather Phenomena

August 1998

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## ADDITIONS/CORRECTIONS

### TEXAS, North

#### **Tarrant County**

<b>Ft Worth</b>	<b>11</b>	<b>1630CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Power lines were blown down by high winds in south Fort Worth.

#### **Hood County**

<b>3 N Granbury</b>	<b>28</b>	<b>1635CST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Thunderstorm Wind</b>
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High winds unroofed a house and blew down a power pole.

#### **Hill County**

<b>Hubbard</b>	<b>28</b>	<b>2030CST</b>			<b>0</b>	<b>0</b>			<b>Thunderstorm Wind (G52)</b>
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#### **Bell County**

<b>Belton Lake</b>	<b>29</b>	<b>1530CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind</b>
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Boat docks at a marina were blown loose by high winds.

#### **Bell County**

<b>5 NW Temple</b>	<b>29</b>	<b>1600CST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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High winds damaged a house roof and blew out windows.

#### **Bell County**

<b>Temple</b>	<b>29</b>	<b>1615CST</b>			<b>0</b>	<b>0</b>	<b>25K</b>		<b>Lightning</b>
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Lightning started a fire at an apartment complex.

#### **Lampasas County**

<b>Kempner</b>	<b>29</b>	<b>1635CST</b>			<b>0</b>	<b>0</b>	<b>50K</b>		<b>Thunderstorm Wind</b>
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High winds unroofed a church, damaged a nursing home and a house, uprooted trees and blew over a fruit stand.

#### **Henderson County**

<b>Malakoff</b>	<b>30</b>	<b>1335CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind (G52)</b>
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High winds blew down power lines, power poles, and large tree limbs.

#### **Fannin County**

<b>Bailey</b>	<b>30</b>	<b>1745CST</b>			<b>0</b>	<b>0</b>	<b>2K</b>		<b>Thunderstorm Wind (G52)</b>
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High winds destroyed sheds and outbuildings, and blew down large tree limbs.

### TEXAS, Western North

#### **Wichita County**

<b>Wichita Falls</b>	<b>03</b>	<b>1615CST</b> <b>1730CST</b>			<b>0</b>	<b>0</b>	<b>6K</b>		<b>Flash Flood</b>
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#### **Wichita County**

<b>7 N Wichita Falls</b>	<b>03</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Thunderstorm Wind</b>
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#### **Wichita County**

<b>Wichita Falls</b>	<b>03</b>	<b>1700CST</b>			<b>0</b>	<b>0</b>	<b>30K</b>		<b>Thunderstorm Wind</b>
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An isolated severe thunderstorm developed over Wichita County during the late afternoon of the 3rd resulting in wind damage and flash flooding. The roof was blown off at Git-N-Go Texaco on Kell Boulevard in Wichita Falls. Numerous power poles, trees and power lines were also downed across the city. One tree fell on a car. Damage was also reported at Midwestern State University, training camp of the Dallas Cowboys, where several bleachers, tents and fences were damaged. The most widespread damage occurred around Midwestern Parkway and Taft Boulevard. Two inches of rain fell in a short period of time causing many streets to flood in Wichita Falls. Many people needed to be rescued from their cars, including 2 police officers, due to high water. Power lines were also downed, and one mobile home was also blown over during the storm 7 miles north of Wichita Falls.

### VERMONT, North and Central

#### **Franklin County**

<b>St Albans</b>	<b>11</b>	<b>2015EST</b> <b>2020EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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A cold front moved across Vermont and triggered thunderstorms during the late afternoon and night of August 11th. In northwest Vermont, a thunderstorm with strong winds blew down trees and power lines in and around St Albans, Vermont. Pea size hail was also reported.

#### **Franklin County**

<b>South Portion</b>	<b>11</b>	<b>2030EST</b>			<b>0</b>	<b>0</b>	<b>1M</b>		<b>Flash Flood</b>
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**12**  
**0100EST**

A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th.

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### VERMONT, North and Central

With a warm humid airmass in place, thunderstorms resulted in torrential downpours during the night. Small streams and brooks, such as Minnow Brook, quickly rose out of their banks. Road flooding was especially severe in St Albans where numerous roads, including a portion of I-89, were closed. Roads were flooded in Fairfield and Bakersfield with many closed. Many homes had water in their basements.

#### Chittenden County

##### Countywide

11	2030EST	0	0	2M	Flash Flood
12	0100EST				

A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th. With a warm humid airmass in place, thunderstorms resulted in torrential downpours during the night. Small streams and brooks quickly rose out of their banks. Initially, road flooding was especially severe in eastern portions of the county, including the towns of Underhill, Jericho and Westford with numerous roads closed or washed out.

#### Orleans County

##### West Portion

11	2150EST	0	0	500K	Flash Flood
12	0030EST				

A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th. With a warm humid airmass in place, thunderstorms resulted in torrential downpours during the late night. Small streams and brooks quickly rose to bankful or greater. Roads were flooded in Westfield.

#### Caledonia County

##### South Portion

11	2300EST	0	0	1M	Flash Flood
12	0100EST				

A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th. With a warm humid airmass in place, thunderstorms resulted in torrential downpours late at night. Small streams and brooks across southern portions of the county quickly rose out of their banks. Road flooding was especially severe in Danville where Roy Brook quickly flooded with massive road damage resulting. Flooding of Cooper Brook resulted in road washouts in Hardwick and flooding of some homes. Flooding was also reported in Groton and St. Johnsbury.

#### Chittenden County

##### South Burlington

12	0230EST 1000EST	0	0	30K	Flood
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Heavy rain and thunderstorms occurred during August 11th into the early morning hours of August 12th. The Burlington Airport NWS Office received 3.62 inches on August 11th which set a new August daily rainfall record. Williston Road in South Burlington flooded and was closed from 3:30 AM EDT to 11 AM EDT (2:30 AM EST to 10 AM EST). Culverts backed up and Muddy Creek flooded.

#### Lamoille County

##### Johnson

12	0830EST 1200EST	0	0	50K	Flood
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#### Lamoille County

##### Wolcott

12	0830EST 1200EST	0	0	30K	Flood
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A cold front moved across the region during the late afternoon and night of August 11th into the early morning of August 12th. Thunderstorms during the early morning hours of August 12th resulted in torrential downpours with rises on the Lamoille River. Flooding of this river occurred during the morning hours in and around both the Johnson and Wolcott areas. Road washouts were reported in Wolcott.

#### Chittenden County

##### Charlotte

24	1300EST	0	0	50K	Thunderstorm Wind
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Thunderstorm winds blew down numerous trees with roof damage to one structure.

#### Addison County

##### Bristol

24	1325EST 1330EST	0	0	10K	Thunderstorm Wind
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#### Addison County

##### New Haven Jct

24	1335EST	0	0		Hail (0.88)
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An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. Specifically, in Addison county, strong winds blew trees down in Bristol, while nickle size hail fell at New Haven Junction.

#### Orange County

##### Bradford

24	1357EST	0	0		Hail (1.75)
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# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### VERMONT, North and Central

#### Orange County

<b>Bradford</b>	<b>24</b>	<b>1357EST</b>			<b>0</b>	<b>0</b>	<b>30K</b>		<b>Thunderstorm Wind</b>
		<b>1400EST</b>							

#### Orange County

<b>Randolph</b>	<b>24</b>	<b>1415EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. Specifically, in Bradford (Orange county), a swath of hundreds of trees and power lines were blown down by strong thunderstorm winds with golfball size hail. In addition, a tree and a sign was blown down in Randolph.

#### Washington County

<b>Cabot</b>	<b>24</b>	<b>1400EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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#### Washington County

<b>East Warren</b>	<b>24</b>	<b>1435EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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An area of low pressure moved across southern Canada. During the afternoon, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. Specifically, in Washington county, strong winds blew down trees and power lines in Cabot and trees in East Warren.

#### Caledonia County

<b>Danville</b>	<b>24</b>	<b>1400EST</b>			<b>0</b>	<b>0</b>	<b>50K</b>		<b>Thunderstorm Wind</b>
		<b>1410EST</b>							

#### Caledonia County

<b>Peacham</b>	<b>24</b>	<b>1400EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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#### Caledonia County

<b>West Burke</b>	<b>24</b>	<b>1400EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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Thunderstorm winds blew a number of trees down with windows broken and structural damage reported in Danville. In West Burke and Peacham, trees and power lines were blown down. Numerous power outages were reported.

#### Franklin County

<b>Sheldon</b>	<b>24</b>	<b>1630EST</b>			<b>0</b>	<b>0</b>	<b>20K</b>		<b>Thunderstorm Wind (G59)</b>
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Thunderstorm winds gusted to 68 mph (59 knots) and blew down numerous large trees as well as power lines.

#### Washington County

<b>Duxbury</b>	<b>24</b>	<b>1745EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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#### Washington County

<b>Waitsfield</b>	<b>24</b>	<b>1745EST</b>			<b>0</b>	<b>0</b>	<b>15K</b>		<b>Thunderstorm Wind</b>
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#### Washington County

<b>Northfield</b>	<b>24</b>	<b>1751EST</b>			<b>0</b>	<b>0</b>	<b>5K</b>		<b>Thunderstorm Wind</b>
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An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Washington county, numerous trees and power lines were blown down in the towns of Duxbury, Waitsfield and Northfield.

#### Washington County

<b>West Portion</b>	<b>24</b>	<b>1800EST</b>			<b>0</b>	<b>0</b>	<b>75K</b>		<b>Flash Flood</b>
		<b>1930EST</b>							

An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Washington county, torrential downpours accompanied these storms. Along with the heavy rainfall, half inch hail was also reported in Berlin. The Dog River briefly flooded its banks near Berlin while the Mad River flooded a few roads in and around Waitsfield. In Middlesex, a mudslide blocked portions of I-89.

#### Rutland County

<b>Castleton</b>	<b>24</b>	<b>1805EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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#### Rutland County

<b>Pittsford</b>	<b>24</b>	<b>1810EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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#### Rutland County

<b>Rutland</b>	<b>24</b>	<b>1810EST</b>			<b>0</b>	<b>0</b>	<b>10K</b>		<b>Thunderstorm Wind</b>
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An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended

# Storm Data and Unusual Weather Phenomena

August 1998

Location	Date	Time Local/ Standard	Path Length (Miles)	Path Width (Yards)	Number of Persons		Estimated Damage		Character of Storm
					Killed	Injured	Property	Crops	

## ADDITIONS/CORRECTIONS

### VERMONT, North and Central

across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Rutland county, numerous trees and power lines were blown down in the localities of Castleton, Pittsford and Rutland along with damage to homes.

#### **Orange County Randolph**

24 1810EST 0 0 5K Thunderstorm Wind

#### **Orange County Tunbridge**

24 1810EST  
1815EST 0 0 20K Thunderstorm Wind

#### **Orange County Chelsea**

24 1815EST 0 0 10K Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Orange county, numerous trees and power lines were blown down in Chelsea and Randolph, while strong thunderstorm winds damaged a barn in Tunbridge.

#### **Addison County Granville**

24 1815EST 0 0 10K Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Addison county, numerous trees and power lines were blown down in Granville.

#### **Windsor County Bethel**

24 1815EST 0 0 10K Thunderstorm Wind

An area of low pressure moved across southern Canada. During the afternoon and evening, the associated cold front extended across northern portions of Vermont and New York. Thunderstorms developed along and ahead of the front. In Windsor county, numerous trees and power lines were blown down in Bethel.



## Reference Notes:

### Fatality Location Abbreviations:

**BF**    **Ball Field**  
**BO**    **Boating**  
**BU**    **Business**  
**CA**    **Camping**  
**EQ**    **Heavy Equipment/Construction**  
**GF**    **Golfing**  
**IW**    **In Water**  
**LS**    **Long Span Roof**

**MH**    **Mobile Home**  
**OT**    **Other**  
**OU**    **Outside/Open Areas**  
**PH**    **Permanent Home**  
**SC**    **School**  
**TE**    **Telephone**  
**UT**    **Under Tree**  
**VE**    **Vehicle**

When reports are not received or are incomplete, the Storm Summary National Death and Injury totals may also be incomplete.

### Definition of Fujita Tornado Scale ( F Scale )

(F0) Gale tornado (40-72 mph) : Light damage;  
Some damage to chimneys; break branches off trees; push over shallow-rooted trees; signs and billboards damaged.

(F1) Moderate tornado (73-112 mph): Moderate damage; The lower limit (73 mph) is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads.

(F2) Significant tornado (113-157 mph): Considerable damage; Roofs torn from frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.

(F3) Severe tornado (158-206 mph): Severe damage; Roofs and some walls torn from well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.

(F4) Devastating tornado (207-260 mph): Devastating damage; Well-constructed houses leveled; structure with weak foundations blown off some distance; cars thrown and large missiles generated.

(F5) Incredible tornado (261-318 mph): Incredible damage; Strong frame houses lifted from foundation and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 meters; trees debarked; incredible phenomena will occur.

(F6-F12) (319 mph to Mach 1, the speed of sound):  
The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

*(F0+F1) Weak Tornado*

*(F2+F3) Strong Tornado*

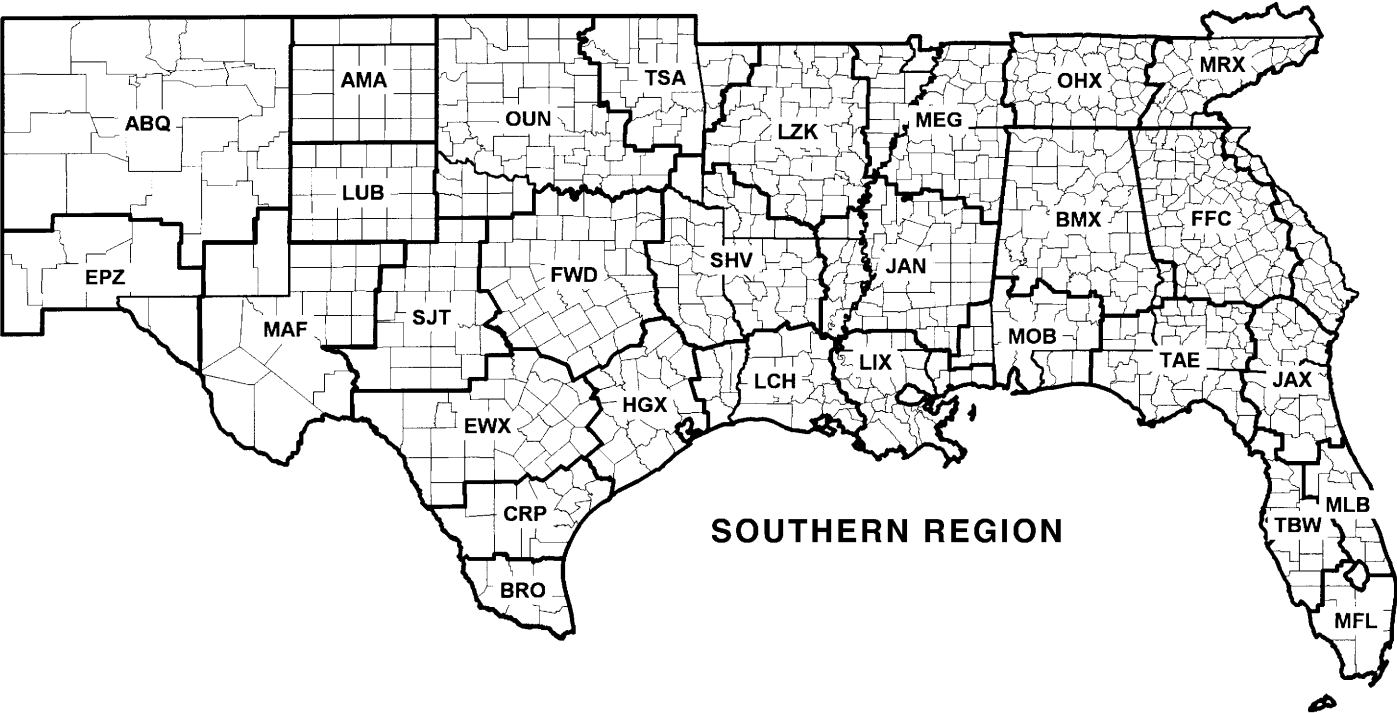
*(F4+F5) Violent Tornado*



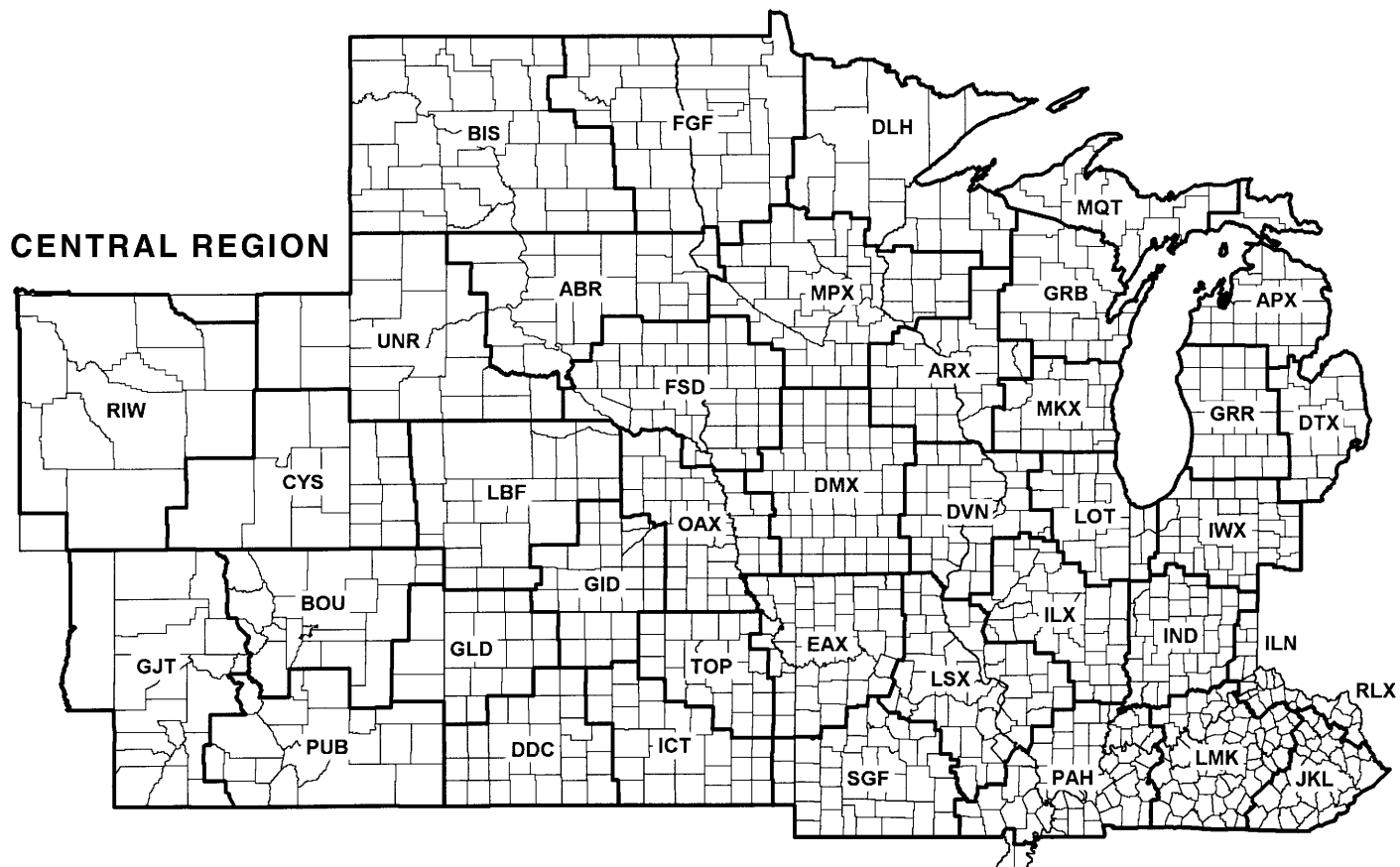
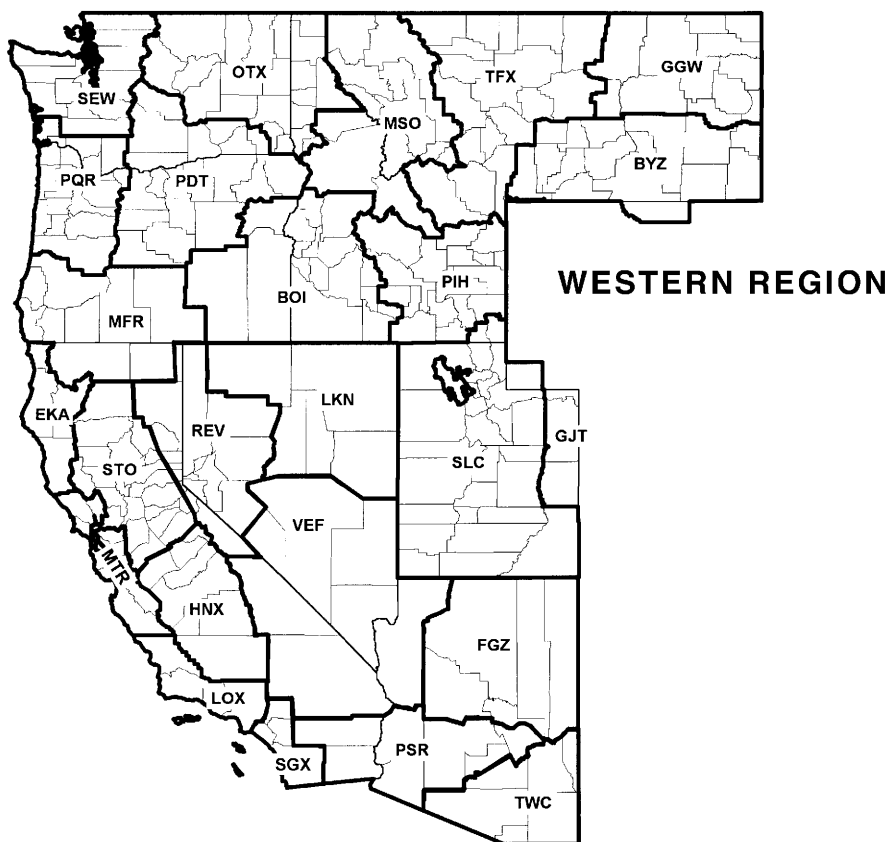
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From J. Atmos. Sci., August 1981, p. 1517-1519

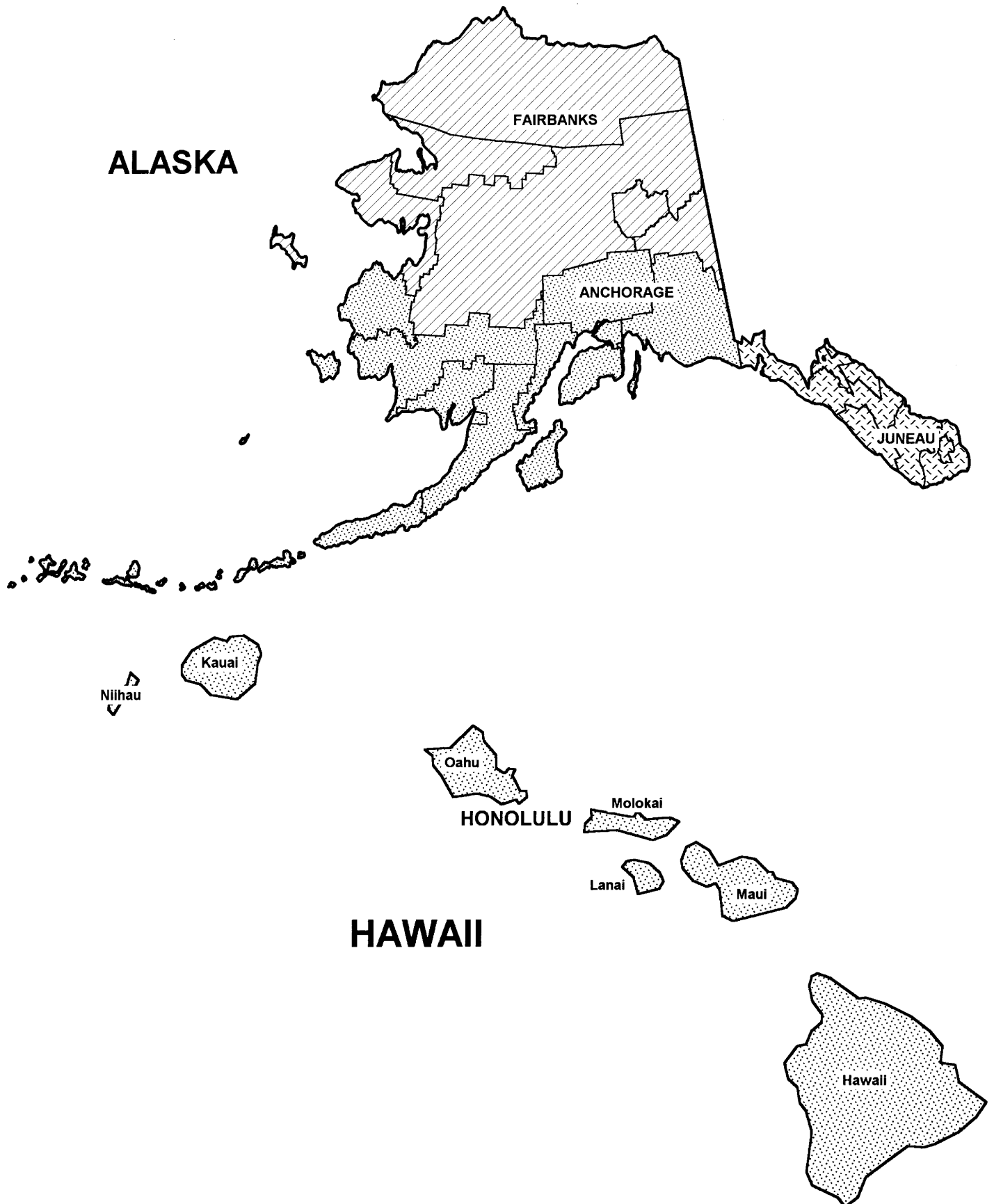
COUNTY WARNING & FORECAST AREAS - MODERNIZED NWS



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